Commonwealth of Kentucky

Division for Air Quality

RESPONSE TO COMMENTS

ON THE TITLE V DRAFT PERMIT V-07-017

Cash Creek Generation, LLC.

Cash Creek Generating Station

Henderson, KY

November 28, 2007

Combustion Section, Reviewer

SOURCE ID:	21-101-00134
AGENCY INTEREST:	40285
ACTIVITY:	APE20060001

SOURCE DESCRIPTION:

Cash Creek Generation, LLC, has applied to the Kentucky Division for Air Quality for a Title V permit to construct a nominal 770 megawatt (MW) electric generation station to be located at Kentucky State Highway 1078 in Henderson, Kentucky. The IGCC facility, an air separation plant, a coal gasification facility and a combined cycle power generation facility are integrated into a single efficient electric generation station to produce electricity from synthesis gas (syngas). The syngas will be the primary fuel used to fire two, GE7FB series combustion turbines (CT's) in combination with two heat recovery steam generating (HRSG) units and a steam turbine to produce electricity. For the IGCC combustion turbines, SCR and nitrogen diluent to control NO_x emissions has been included. Additional associated equipment are the tail gas thermal oxidizer, gasifier flare, the associated material storage and handling processes (coal, and combustion by-products), the cooling tower, the auxiliary boiler, and the emergency fire water pump.

The proposed project is classified as a Title V major source due to its emissions of regulated air pollutants. It constitutes a major stationary source as defined in 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality and is subject to evaluation and review under the provisions of the PSD regulation. The proposed project will result in a significant emissions increases of the following regulated air pollutants: Particulate matter (PM & PM_{10}), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), sulfur dioxide (SO_2), and sulfuric acid (H_2SO_4) mist. The project is not a major source for Hazardous Air Pollutants.

PUBLIC AND U.S. EPA REVIEW:

An advertisement was placed in *The Gleaner* of Henderson, Kentucky on May 20, 2007 announcing the public comment period and announcing a public hearing At Henderson County Court House in Henderson, Kentucky on June 29, 2007. The Division for Air Quality received comments on the draft permit during the public hearing in Henderson, Kentucky on June 29, 2007. The public comment period expired 30 days from the date of publication.

Comments were received from Cash Creek Generation, LLC, U.S. EPA, Region 4, Environmental Law and Policy Center, Sierra Club, Warrick County, Newburg Township, City of Evansville, Dr. Theodore Stransky, Steve Jenkins of CH2M Hill and Reverend David E. Latham. Attachment A through Attachment J to this document lists the comments received and the Division's response to each comment. The U.S. EPA has 45 days to comment on this proposed permit.

Abbreviations and acronyms are used in these comments

BACT - best available control technology
CAM - compliance assurance monitoring
EGR - exhaust gas recirculation
EPA - U.S. Environmental Protection Agency
IGCC - integrated gasification combined cycle
KDAQ - Kentucky Division for Air Quality
MMBtu -million British thermal units
PSD - prevention of significant deterioration
SCR - selective catalytic reduction
SNCR - selective non-catalytic reduction
SSM - startup, shutdown, and malfunctions
tpy - tons per year

In addition the following abbreviations are used for pollutants:

CO - carbon monoxide
NO_x - nitrogen oxides
PM - total particulate matter
PM_{10} - particulate matter with an aerodynamic diameter of 10 µm or less
$PM_{2.5}$ - particulate matter with an aerodynamic diameter of 2.5 µm or less
SO_2 - sulfur dioxide

ATTACHMENT A

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Bryan Handy, Kentuckiana Engineering, on behalf of Cash Creek Generation LLC.

COMMENT 1:

Permit Location:

Emission Units 01 and 02, Synthesis/Natural Gas-Fired Combined Cycle Combustion Turbines [Emissions Units: HRSG-1 & HRSG-2], Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

Construction commenced: estimated - 2008

Division's response:

Comment acknowledged, change made.

COMMENT 2:

Permit Location:

Emission Units 01 and 02, Synthesis/Natural Gas-Fired Combined Cycle Combustion Turbines [Emissions Units: HRSG-1 & HRSG-2], Section (1)(e) Operating Limitations

Concern:

CCG requests that Section (1)(e) be clarified such that its application becomes effective at such time as the Cash Creek Generation gasifiers and combined cycle power block have both completed operational testing and entered commercial operation. This change is requested because the combined cycle power block is expected to commence operational testing with natural gas fuel approximately six (6) to twelve (12) months prior to the introduction of synthesis gas from the gasifiers. This testing period is required to fully demonstrate proper combined cycle functionality with natural gas fuel prior to the introduction of synthesis gas fuel. In addition, the gasifier construction period is intentionally staged to lag the combined cycle construction period to facilitate safety requirements pertaining to the overall construction process and to minimize air emissions during the start-up and testing process. CCG's suggested language change follows.

Proposed Language:

e) Pursuant to 40 CFR 60, Subpart Da, the permittee must operate such that more than 75 percent (by heat input) of the fuel combusted is synthetic-coal gas on a 12-month rolling average. This operating limitation shall commence at the earlier of twelve months after the combined cycle gas turbines commence operation or at such time as the gasifiers and associated acid gas removal systems commence operation to provide synthesis gas to the combined cycle gas turbines, .

Division's response:

The Division does not concur with the proposed changes to the permit language. Since the draft permit was issued, the final revisions to 40 CFR 60 Subpart Da have been promulgated. The Division has revised the permit to include the final wording of the NSPS, 40 CFR 60, Subpart Da.

<u>Comment 3:</u>

Permit Location:

Emission Units 01 and 02, Synthesis/Natural Gas-Fired Combined Cycle Combustion Turbines [Emissions Units: HRSG-1 & HRSG-2], Section (2) Emissions Limitations

Concern:

CCG requests that the averaging periods associated with the emission limitations in this section be revised to be consistent with the averaging periods that were provided in the application and served as the basis for the air emission modeling. CCG's suggested language changes are set out below.

Proposed Language:

a) Pursuant to 40 CFR 60 Subpart Da, and 401 KAR 51:017, nitrogen oxides emission level in the exhaust gas shall not exceed 0.0331 lb/MMBtu during any rolling <u>24-hour</u> average period (approximately 5 ppmvd @ 15 % oxygen (O_2)) when firing synthesis gas. The nitrogen oxides emission level in the exhaust gas shall not exceed 0.0246 lb/MMBtu during any rolling <u>24-hour</u> average period when firing natural gas. Additionally, the permittee shall keep records of the quantity of each fuel used and the actual NO_X and CO emissions during such periods. The ppm level of nitrogen oxides (at ISO standard conditions) and lb/MMBtu shall be demonstrated by stack test, and measured with use of a continuous emission monitor (CEM).

b) Pursuant to 401 KAR 51:017, the carbon monoxide emission level in the exhaust gas shall not exceed 0.0485 lb/MMBtu during any rolling <u>24-hour</u> average period when firing synthesis gas. The carbon monoxide emission level in the exhaust gas shall not exceed 0.0449 lb/MMBtu during any rolling <u>24-hour</u> average period when firing natural gas. Additionally, the permittee shall keep records of the quantity of each fuel used and the actual NO_X and CO emissions during such periods. The ppm level of carbon monoxide and lb/MMBtu shall be demonstrated by stack test, and measured with use of a continuous emission monitor (CEM).

e) Pursuant to 40 CFR 60 Subpart Da, and 401 KAR 51:017, filterable particulate/PM_{10} emissions shall not exceed 0.0085 lb/MMBtu <u>during any rolling three-hour average period when firing synthesis gas.</u> Total particulate/PM_{10} emissions shall not exceed 0.0217 lb/MMBtu <u>during any rolling three-hour average period when firing synthesis gas.</u> The lb/MMBtu level of particulate emissions shall be demonstrated by stack test, then calculated based on the emission factor derived during the test, fuel consumption data, fuel heat input, and fuel heat content [see specific monitoring requirements].

f) Pursuant to 401 KAR 51:017, sulfuric acid mist (H_2SO_4) emissions shall not exceed 0.0035 lb/MMBtu <u>during any rolling three-hour average period when firing synthesis gas.</u> The lb/MMBtu level of sulfuric acid mist emissions shall be demonstrated by stack test, then calculated based on the emission factor derived during the test, fuel consumption data, fuel heat input, and fuel heat content.

Division's response:

Comment acknowledged, changes made.

<u>Comment 4:</u>

Permit Location:

Emission Units 01 and 02, Synthesis/Natural Gas-Fired Combined Cycle Combustion Turbines [Emissions Units: HRSG-1 & HRSG-2], Section (4)(a) Specific Monitoring Requirements

Concern:

CCG requests that the Continuous Emissions Monitor ("CEM") provisions be expanded to allow a CEM for either oxygen or carbon dioxide as is provided in the cited regulation. CCG's suggested language change is set out below.

Proposed Language:

a) Pursuant to 401 KAR 60:005, Section 3(1)(c) incorporating by reference 40 CFR 60 Da; 401 KAR 52:020, Section 26; and 401 KAR 59:005, Section 4, the permittee shall install, calibrate, maintain, and operate continuous emission monitoring systems for measuring the sulfur dioxide emissions, nitrogen oxides emissions, mercury, and either oxygen or carbon dioxide emissions. Additionally, a CEM system shall be installed, calibrated, maintained, and operated for measuring oxygen <u>or carbon dioxide</u> levels of the flue gases at each location where sulfur dioxide or nitrogen emissions are monitored. The permittee shall ensure the continuous emission monitoring systems are in compliance with the requirements of 401 KAR 59:005, Section 4.

Division's response:

Comment acknowledged, change made.

<u>Comment 5:</u>

Permit Location:

Emission Units 01 and 02, Synthesis/Natural Gas-Fired Combined Cycle Combustion Turbines [Emissions Units: HRSG-1 & HRSG-2], Section (6) Specific Reporting Requirements

Concern:

CCG requests that the averaging periods associated with the excess emissions reporting in this section be revised to be consistent with the averaging periods that were provided in the application and served as the basis for the air emission modeling. CCG's suggested language changes are set out below.

Proposed Language:

m) Pursuant to 401 KAR 52:020, Section 26, for nitrogen oxides, excess emissions are defined as any <u>24</u> hour period during which the average emissions (arithmetic average) exceed the applicable nitrogen oxides emission standard. These periods of excess emissions shall be reported quarterly.

n) Pursuant to 401 KAR 52:020, Section 26, excess emissions of sulfur dioxide are defined as any <u>3-hour</u> period during which the <u>average</u> sulfur dioxide emissions as indicated by continuous emission monitoring, or the sulfur content (or as otherwise required in an approved custom fuel sulfur monitoring plan) of the fuel being fired in the gas turbine(s) exceeds the limitations set forth in Subsection 2, Emission Limitations. These periods of excess emissions shall be reported quarterly.

o) Pursuant to 401 KAR 52:020, Section 26, for carbon monoxide, excess emissions are defined as any 24 hour period during which the average emissions (arithmetic average of three contiguous one hour periods) exceed the applicable carbon monoxide emission standard. These periods of excess emissions shall be reported quarterly.

q) Pursuant to 401 KAR 52:020, Section 26, for sulfuric acid mist (H_2SO_4) excess emissions are defined as any 3 hour period during which the average emissions exceed the applicable emission standard. These periods of excess emissions shall be reported quarterly.

Division's response:

Comment acknowledged, change made.

Comment 6:

Permit Location:

Emission Unit 03, Indirect Heat Exchanger (AUXB), Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

Construction commenced: estimated - 2009

Division's response:

Comment acknowledged, change made.

Comment 7:

Permit Location:

Emission Unit 04, Flare, Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

Construction commenced: estimated - 2009

Division's response:

Comment acknowledged, change made.

<u>Comment 8:</u>

Permit Location:

Emission Unit 05, Acid Gas Removal and Thermal Oxidizer, Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

Construction commenced: estimated - 200<u>9</u>

Division's response:

*Comment acknowledged, change made***.**

<u>Comment 9:</u>

Permit Location:

Emission Unit 05, Acid Gas Removal and Thermal Oxidizer, Section (4) Specific Monitoring Requirements

Concern:

CCG requests that the references to flare in Section (4)(f) be replaced with the words "thermal oxidizer" and that reference to syngas flaring be deleted since the thermal oxidizer operates on a continuous basis when a gasifier is operating. CCG's suggested modifications follow.

Proposed Language:

f) The permittee shall perform a qualitative visual observation of the opacity of emissions from the <u>thermal oxidizer on a weekly basis</u> <u>and</u> maintain a log of the observations. If visible emissions from the <u>thermal oxidizer</u> are seen, the permittee shall determine the opacity of emissions by Reference Method 9 and initiate an inspection of the <u>thermal oxidizer</u> and the entire process making any necessary repairs.

Division's response:

Comment acknowledged, change made.

<u>Comment 10:</u>

Permit Location:

Emission Unit 11, Sulfur material handling, Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

Construction commenced: estimated - 200<u>9</u>

Division's response:

Comment acknowledged, change made.

<u>Comment 11:</u>

Permit Location:

Emission Unit 06, Coal Handling Operations (Coal crushing and processing operations), Description

Concern:

CCG requests that the barge unloading rate be reduced to be consistent with the application and that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modifications follow.

Proposed Language:

Equipment includes: Conveyor transfer-800tph (37), barge unloading-<u>7</u>00tph (38), conveyor transfer-800tph (K3), transfer house #1-800tph (THDC33), transfer house #2-800tph (THDC34), coal reclaim-105tph (CRD35)

Construction commenced: estimated – 200<u>9</u>

Division's response:

Comment acknowledged, change made.

<u>Comment 12:</u>

Permit Location:

Emission Unit 07, Coal Handling Operations, Description

Concern:

CCG requests that the long-term storage pile acreage be changed to be consistent with the application and that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modifications follow.

Proposed Language:

Dead coal storage pile-90,000 tons (20a), coal stacker to long term storage pile-<u>2.5</u> acres (20b)

Construction commenced: estimated 200<u>9</u>

Division's response:

Comment acknowledged, change made.

<u>Comment 13:</u>

Permit Location:

Emission Unit 07, Coal Handling Operations, Section (1) Operating Limitations

Concern:

CCG requests that Section (1)(c) be revised to limit its applicability to public roads consistent with the application air modeling and the intent of the cited regulation. CCG's suggested modification follows.

Proposed Language:

c) No one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a <u>public</u> paved street or roadway, pursuant to 401 KAR 63:010, Section (4).

Division's response:

The Division does not concur. The word public is not included in the regulation; hence the permit language will not change.

<u>Comment 14:</u>

Permit Location:

Emission Unit 08, Cooling Tower, Description

Concern:

CCG requests that the number of cooling tower cells be decreased to be consistent with the application and that the Construction Commenced estimate be modified to reflect the current construction schedule.

Proposed Language:

<u>Ten</u> cell cooling tower
Construction commenced: estimated 200<u>9</u>

Division's response:

Comment acknowledged, change made.

<u>Comment 15:</u>

Permit Location:

Emission Unit 08, Cooling Tower, Section (1), Operating Limitations

Concern:

As engineering design has progressed respecting the Cash Creek Generating Station ("CC"), CCG has refined the proposed Cooling Tower ("CT") design and associated Particulate Matter ("PM") emissions. This comment provides details of the refined CT design and how the predicted particulate matter emissions compare to those previously proposed in the application. As detailed in Section 4.6.4 of the application, particulate matter (PM_{10}) emissions from a CT result from water and small particles entrained in the exiting air stream. These droplets of water and particulate are known as drift. The best means of reducing the level of drift emitted is to install drift eliminators. Using available water quality data, plant cooling requirements, and 0.0005% drift eliminators, CCG's design firm has prepared a refined water balance respecting CC. This water balance provides refined CT performance data and associated water quality parameters, including the Total Dissolved Solids ("TDS"), in the CT circulating water.

The current CT design includes a circulating water flow of 375,000 gallons per minute with maximum TDS equal to 2,300 ppm. These performance parameters result in CT PM_{10} emissions of 0.675 pounds per hour, with the 0.0005% drift eliminators determined to be BACT. The revised CT design parameters and resulting PM_{10} emissions are set out in Table 1, below and Attachment 1 to these comments which replaces Section 5.3 of the application.

Table 1: Revised Cooling Tower Parameters

Cooling Water Flow:	**375,000**	gpm, total
Liquid Drift Loss:	**0.0005**	% of cooling water circulation rate
TDS of Liquid Drift:	**2,300**	Ppm
PM_{10} Fraction:[a]	**31.3**	% of PM $\leq$ 10 µm
Operation Hours:	**8,760**	hrs/yr

Potential Cooling Tower Emissions

PM Emissions		**PM_{10} Emissions**	
(lb/hr)	**(tpy)**	**(lb/hr)**	**(tpy)**
2.16	**9.45**	**0.675**	**2.96**

[a] PM/PM_{10} fraction calculated based on 68.7% of the of the drift being deposited in or near the tower and results in 31.3% of the drift being emitted as PM_{10} emissions. As described in Cooling Tower Drift, Its Measurement, Control and Environmental Effect. Cooling Tower Institute Paper No: TP73-01

As a result of the refined CT design PM_{10} emissions are predicted to increase by 0.625 pounds per hour as compared to the emissions specified in the application. Since there is a predicted increase in PM_{10} emissions, CCG performed revised ambient air quality modeling to demonstrate compliance with all PSD and NAAQS requirements. Table 2, below, contains the results of the original PM_{10} modeling and Table 3, below, contains the results of the revised modeling with the increase in CT PM_{10} emissions. By comparing Tables 2 and 3, it is apparent that there is no change in the High-First-High ("HFH") ambient impacts associated with the refined CT PM_{10} emissions. Attachment 2 to these comments contains a complete revised modeling addendum including electronic copies of the input and output files. Additionally Attachment 3 to these comments contains revised Tables 3-2, 4-1 and 4-24 respecting the application.

Table 2: Original PM_{10} PIA Modeling Results

		SITE LULC	
		Nov-06	
		100% LOAD	
		24-HOUR	ANNUAL
	SIL	5	1
	SMC	10	NA
		24 HR	ANNUAL
YEAR		ug/m^3	ug/m^3
1990	HFH	2.52	**0.41**
	X	464,387.91	463,611.00
	Y	4,175,620.75	4,173,769.00
1991	HFH	2.82	0.37
	X	462,288.94	463,611.00
	Y	4,173,312.00	4,173,769.00
1992	HFH	3.17	0.38
	X	463,372.75	463,611.00
	Y	4,172,482.25	4,173,769.00
1993	HFH	3.44	0.37
	X	462,883.94	463,611.00
	Y	4,172,479.00	4,173,769.00
1994	HFH	**3.997**	0.36
	X	462,344.56	463,611.00
	Y	4,173,037.50	4,173,769.00

Table 3: Revised PM_{10} PIA Modeling Results

		Site LULC 100 % LOAD	
YEAR	SIL SMC	24-HOUR 5 10 24 HR ug/m^3	ANNUAL 1 NA ANNUAL ug/m^3
1990	HFH		0.41
	X		463611.00
	Y		4173769.00
1994	HFH	3.997	
	X	462344.56	
	Y	4173037.50	

Proposed Language:

CCG requests that the following modifications be made in the draft permit to reflect the refined cooling tower design and resultant modeling.

c) Pursuant to 401 KAR 51:017, <u>the cooling tower circulating water rate</u> shall not exceed <u>375,000</u> gals/minute on a daily average.

d) Pursuant to 401 KAR 51:017 the total dissolved solids (TDS) concentration in the circulated cooling water shall not exceed a TDS concentration of 2,300 parts per million.

Division's response:

Comment acknowledged, change made.

Comment 16:

Permit Location:

Emission Unit 09, Emergency Fire Pump, Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

Construction commenced: estimated - 2010

Division's response:

Comment acknowledged, change made.

Comment 17:

Permit Location:

Emission Unit 09, Emergency Fire Pump, Section (3) Testing Requirements

Concern:

CCG requests that a typographical error in Section (3)(b) be corrected.

Proposed Language:

b) Pursuant to 40 CFR 60.4244, [per proposed revisions to NSPS Subpart JJJJ published in the Federal Register on June 12, 2006] Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (1) through (6) of this section.

Division's response:

Comment acknowledged, change made.

Comment 18:

Permit Location:

Emission Unit 10, Plant Roadways [Emissions Units: HRP], Description

Concern:

CCG requests that the Construction Commenced estimate be modified to reflect the current construction schedule. CCG's suggested modification follows.

Proposed Language:

CCG proposes the following language to address the
Construction commenced: estimated - 2008

Division's response:

Comment acknowledged, change made.

<u>Comment 19:</u>

Permit Location:

Emission Unit 10, Plant Roadways [Emissions Units: HRP], Section (1) Operating Limitations

Concern:

CCG requests that Section (1)(c) be revised to limit its applicability to public roads consistent with the application air modeling and the intent of the cited regulation. CCG's suggested modification follows.

Proposed Language:

c) No one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a <u>public</u> paved street or roadway, pursuant to 401 KAR 63:010, Section (4).

Division's response:

See Division response to Comment #13 above.

<u>Comment 20:</u>

Permit Location:

Section (D)(2), Source Emission Limitations and Testing Requirements

Concern:

CCG requests that references to VOCs in this Section be deleted as there is no VOC PSD BACT limit specified for Emission Units 01 and 02. In addition, CCG requests that Sections (D)(2)(3) and (D)(2)(4) be modified by replacing the word "condensable" with "total" to provide consistency with the applicable emission limitation. CCG's suggested modifications are shown below.

Proposed Language:

2. Particulate matter ($PM/PM_{10}/PM_{2.5}$), sulfur dioxide (SO_2), nitrogen oxides (NO_X) carbon monoxide <u>(CO), mercury (Hg)</u> and sulfuric acid mist (H_2SO_4) emissions, measured by applicable reference methods, or an equivalent or alternative method specified in 40 C.F.R. Chapter I, or by a test method specified in the state implementation plan shall not exceed the respective limitations specified herein.

3. Emission Units 01 and 02 shall be performance tested initially for compliance with the emission standards for PM/PM_{10} (filterable and <u>total</u>); sulfur dioxide (SO_2); nitrogen oxides (NO_X); carbon monoxide <u>(CO), mercury</u>; and H_2SO_4 by applicable reference methods, or by equivalent or alternative test methods specified in this permit or approved by the cabinet (and U.S.EPA, if required).

4. Emission Units 01 and 02 shall be performance tested biannually (once every 24 months) for compliance with the emission standards for PM/PM_{10} (filterable and <u>total); mercury</u> and H_2SO_4 by applicable reference methods, or by equivalent or alternative test methods

specified in this permit or approved by the cabinet (and U.S.EPA, if required).

Division's response:

Comment acknowledged, change made.

Comment 21:

Permit Location:

Section (G)(d), General Provisions, Construction, Start-Up, and Initial Compliance Demonstration Requirements

Concern:

CCG requests that the number of emission units be revised from ten (10) to eleven (11).

Proposed Language:

Pursuant to a duly submitted application the Kentucky Division of Air Quality hereby authorizes the construction of the equipment described herein, Emissions Units 01 through 11 in accordance with the terms and conditions of this permit.

Division's response:

Comment acknowledged, change made.

ATTACHMENT B

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Greg M. Worley of U.S. EPA Region 4.

1. Sulfur Dioxide BACT Assessment - KDAQ's BACT assessment for SO_2 appears to focus solely on emissions from the combustion turbines and on the acid gas removal technologies that determine combustion turbine SO_2 emissions. Another source of SO_2 emissions is the sulfur recovery system. Estimated SO_2 emissions from the thermal oxidizer used to control sulfur-containing gases from the tail gas treatment unit are 91.3 tpy. The final statement of basis should explain the factors that affect SO_2 emissions from the sulfur recovery system, what considerations were given to minimizing these emissions, and why an SO_2 emissions rate producing emissions of 91.3 tpy represents BACT. In this explanation, we recommend including a brief discussion of how the selection of Selexol™ rather than Rectisol™ affects SO_2 emissions from the tail gas treatment unit thermal oxidizer. We also note that the emissions limitations for the tail gas treatment unit thermal oxidizer in draft permit Condition B.2, Emissions Unit 05, do not include a specific hourly SO_2 emissions limit equivalent to 91.3 tpy, but rather specify emissions restrictions in other units. We recommend that the final statement of basis contain an explanation of how the emissions restrictions in the permit assure an SO_2 emissions rate of no more than 91.3 tpy.

Division's Response:

In this IGCC design, the acid gas removal unit extracts H2S and COS from the synthesis gas. Either Selexol or Rectisol can be used in the acid gas removal unit. Based on economic considerations and the insignificance of the removal efficiency difference between Selexol and Rectisol, the Division concurs with CCG that Selexol is the correct choice for BACT in the acid gas removal unit for the synthesis gas going to the combustion turbines.

Use of Selexol determines the amount of sulfur contained in the gases that proceed from the acid gas removal unit to the sulfur recovery system. The sulfur recovery system consists of the two Claus stages, the thermal oxidizer and the flare. The amount of sulfur in the gases that go to the sulfur recovery system is minimally impacted by the 99.8% removed by Selexol or the 99.9% that might be removed by Rectisol (a difference of only two pounds per ton of sulfur removed); it is not a significant factor in emissions from the sulfur recovery unit. The emission limit on the Claus stages is the only significant factor determining emissions of sulfur from the sulfur recovery unit.

The Division did an extensive review of permitted sulfur recovery units for refineries, natural gas treatment processes, and coal gasification systems. Based on the Division's research, an exhaust stream from the sulfur recovery system containing 100 ppm sulfur is the best permitted emission rate and the best emission rate demonstrated in practice by any type of sulfur recovery unit. The Division set the BACT limit for sulfur from the sulfur recovery unit at 100 ppm. This is lower than any other permitted IGCC unit **and is significantly lower** *than the proposed standard of performance for petroleum refineries which allows an emission limit of 250 ppm (72 Federal Register 27178, Monday, May 14, 2007).*

The applicant did not propose an emission limit from the sulfur recovery unit but instead proposed an hourly emission rate of 20.82 lbs/hr, which equates to an annual emission rate of 91.2 tpy of sulfur dioxide. The Division calculated the annual emission rate of sulfur dioxide based on the 100 ppm emission limit, and determined that it would be less than the proposed emission rate of 91.2 tpy of sulfur dioxide. The Division did not accept the 91.2 tpy sulfur dioxide emission estimate included in the Statement of Basis in Table 2-1 as a BACT limit, nor is it included in the permit as such. Instead, the Division imposed the 100 ppm limit contained in the permit as BACT. The Division has included this explanation in the revised Statement of Basis.

2. Startup, Shutdown, Malfunction Provisions for Combustion Turbines - Condition B.2.i), Emissions Units 01 and 02, in the draft permit contains provisions for startup, shutdown, and malfunctions (SSM) of the combustion turbines. The condition reads in part as follows: "Pursuant to 401 KAR 51:017, duration of startup, shutdown and malfunction periods are limited to 48 hours per occurrence with 3 annual occurrences for 2 gasifiers and with 29 annual occurrences for 1 gasifier. However, this requirement is waived during the first year after the initial demonstration of compliance." We have the following comments about this permit condition:

   a. The meaning of the terms "startup" and "shutdown" in this condition is unclear. The condition itself applies specifically to combustion turbines. Typical combined cycle combustion turbines can be started up and shut down in a matter of a few hours, not 48 hours. If the terms startup and shutdown refer to starting up and shutting down the entire gasifier system that generates synthetic gas for the combustion turbines, this should be made clear. For additional clarification, KDAQ may wish to add a separate SSM provision applicable to extended periods when the combustion turbines are fired on natural gas. Any SSM exception for natural gas combustion should be restricted to a period no longer than a few hours per occurrence.

Division's response:

The Division concurs with the comment and has modified the permit language to clarify which startup and shutdown is addressed in permit condition B. 2. (l) (formerly B. 2. (i) in the draft permit). U.S. EPA is correct in that language was referring to the start-up and shutdown (S&S) of the gasifier, and the coordinated S&S of the turbines. There are three distinct phases of start-up for the operation. First, there is the start-up of the turbines while firing natural gas. Secondly there is startup of the gasifier to produce synthesis gas, this is the step that is being referred to in the permit condition B. 2. (l). The permit has been changed to reflect this. Thirdly, there is a period that can occur when the turbine is being switched from Natural Gas to Synthesis gas. Since construction and shakedown of the turbines are expected to occur prior to the gasifiers, there is a potential for the unit to be used to supply peak power while combusting natural gas prior to the gasifier becoming operational. Due to the rapid ability to perform S&S for the turbines while firing natural gas, no source specific requirements are included in this permit. Periods of start-up, shutdown and malfunctions are covered under the general requirements of 401 KAR 50:055 and 40 CFR 60 Subpart Da.

   b. Does the phrase "this requirement" refer to the 48-hour duration per occurrence, the number of occurrences, or both?

Division's response:

This requirement refers both to the duration and the number of occurrences. Changes have been made to the permit.

c. The statement of basis should include a justification for granting a waiver during the first year of operation.

Division's response:

The Division has corrected the regulatory citation to read "401 KAR 52:020" instead of "401 KAR 51:017". Due to the limited amount of operational experience with IGCC units of this size and complexity, the Division has concluded that it is not unreasonable to include a waiver of the start-up and shutdown quantities and duration for the first year of operation of the facility. This explanation has been included in the Statement of Basis.

3. Fine Particles - We have the following comments related to $PM_{2.5}$:

a. On page 14 of the statement of basis, KDAQ lists $PM_{2.5}$ as a pollutant subject to BACT. However, the draft permit does not contain a BACT emissions limit for $PM_{2.5}$. If KDAQ is using PM_{10} in the BACT evaluation as a surrogate for $PM_{2.5}$ in accordance with current EPA guidance, this should be explained.

Division's response:

Comment acknowledged. Changes made to the Statement of Basis.

b. In the air quality impact analysis section of the statement of basis no mention is made of $PM_{2.5}$. If KDAQ is using PM_{10} in the impact analysis as a surrogate for $PM_{2.5}$ in accordance with current EPA guidance, this should be explained.

Division's response:

*Comment acknowledged. Changes made to the Statement of Basis***.**

4. Compliance Assurance Monitoring - KDAQ acknowledges the applicability of CAM requirements to NO_x emissions from the proposed combustion turbines. KDAQ might also wish to explain in the final determination why it decided that CAM requirements are not applicable to the control of regulated sulfur compounds by thermal oxidation in the tail gas treatment section of the sulfur recovery system.

Division's response:

For CAM to apply to a unit, three conditions must be met. The first is that precontrolled emissions are greater than a hundred tons per year, second is that there is an emission standard, and third that there is a control device used for compliance. For emissions of sulfur compounds, the second two conditions are certainly met. The first is not. During the review process, a "scratch pad" calculation was performed that took the post thermal oxidizer emission rate of 91.2 tons per year, assuming that all TRS was in the form of Carbonyl sulfide (COS) with a molecular weight of 60.8 g/mol. During combustion, one molecule of sulfur dioxide is formed per molecule of COS. Molecular weight of sulfur dioxide is 64.1. Therefore, uncontrolled emissions of TRS from the SRU are 91.2 X (60.8/64.1) = 86.5 tons per year. The assumption that all TRS is COS is an extreme case, as most of it would be in the form of H2S, which has a molecular weight of 34. Since uncontrolled emissions are less than 100 tons per year, CAM is not applicable.

5. Number of Gasifiers - On page 1 of the statement of basis, KDAQ states that the permit

authorizes up to three gasifiers. We can find no reference anywhere in the draft permit to a three-gasifier configuration. One of the permit conditions for the combustion turbines provides for up to two gasifiers.

Division's response:

The editorial error has been corrected to reflect the permitting of two gasifiers.

6. Comparison with Christian County Generation Permit - A final PSD permit was recently issued for the Christian County Generation IGCC project in Christian County, Illinois. This final permit was not available at the time KDAQ issued the draft permit for the Cash Creek project. Our understanding is that the Cash Creek and Christian County Generation projects have the same developer and essentially the same design. Therefore, we recommend that KDAQ review the final permit for Christian County Generation to see if any portions of the permit might be helpful in developing a final permit for Cash Creek. In our own review of the Christian County Generation final permit we have noted that the SO_2 and PM/PM_{10} emissions limits for the combustion turbines when firing natural gas are slightly lower than the limits in the draft permit for Cash Creek.

Division response:

The Division acknowledges the comment and has reviewed the Christian County permit. Changes have been made to the Cash Creek permit and the limits are now consistent with the Christian County permit.

7. Miscellaneous - We have the following miscellaneous comments:

a. In the assessment of BACT for the 278.8 MMBtu/hr auxiliary boiler, KDAQ states that BACT is based on use of low NO_x burners, good combustion practices, and clean fuel (natural gas), and on restricting hours of operation to 500 hours per year. For completeness sake, KDAQ might consider stating that other controls sometimes used on large natural gas-fired boilers - such as FGR, SCR, and SNCR - would be either technically or economically infeasible when considered in addition to the control methods that will be required.

Division's response:

Comment acknowledged and the suggestion has been include in the revised statement of basis.

b. Table 4-13 on page 26 of the statement of basis is a summary of the combustion turbines BACT determination. This table is missing values for natural gas combustion in the column headed "Emission Limit Based on CT Heat Input." Also, the averaging time for NO_x and CO emissions limits is listed as 24 hours in this table, whereas the averaging time for both pollutants in the draft permit is 3 hours.

Division's response:

The natural gas values were incorrectly entered into the gasifier heat input column and have been corrected in Table 4-13, and that table has been modified to remove the gasifier heat input column, since that is not relevant to the permit. The NO_x and CO averaging times have been changed to twenty-four hours in the proposed permit.

c. The draft permit, the word "are" in the second line of Condition B.2.i), Emissions Units 01 and 02 (combustion turbines), should be "is," and the word "waved" in this condition should be "waived."

Division's response:

Comment acknowledged, change made.

d. In the draft permit, the description section for each emissions unit contains an estimate of the construction commencement date. For some units this date is 2007 and for other units it is 2010. Although the description sections are not enforceable, we recommend correcting this apparent inconsistency.

Division's response:

Corrections made. See comments in Attachment A.

e. In draft permit Condition B.1.c), Emissions Units 01 and 02 (combustion turbines), KDAQ is allowing the restriction on the quantity of natural gas usage during any 12-month period to be waived during the first 36 months of operation. A justification for this waiver should be provided in the statement of basis.

Division's response:

Comment acknowledged. This requirement has been deleted from the permit as a result of the final promulgation of 40 CFR 60 Subpart Da.

f. Draft permit Condition B.1, Emissions Unit 03 (auxiliary boiler), contains this statement: "The auxiliary boiler shall only operate during startup periods." KDAQ should specify the equipment to which the term "startup" refers.

Division's response:

Comment acknowledged, a clarification has been made to the permit.

g. In draft permit Condition B.1, Emissions Unit 03 (auxiliary boiler), KDAQ is allowing the restriction of no more than 500 hours of operation during any consecutive 12-month period to be waived during the first 12 months of operation. A justification for this waiver should be provided in the statement of basis. In addition, unless KDAQ intends to allow continuous operation of the auxiliary boiler during the first 12 months of operation, KDAQ should consider restricting use of the auxiliary boiler during the first 12 months to some duration that is greater than 500 hours but less than 8,760 hours.

Division's response:

Comment acknowledged, and the waiver in the permit has been deleted. The regulatory citation has also been corrected.

h. In Condition D.7 of the draft permit, KDAQ repeats the 500-hour-per-12-month operating restriction for the auxiliary boiler but does not repeat the waiver for the first 12 months of operation. We recommend repeating the waiver to avoid confusion.

Division's response:

Comment acknowledged. The waiver in the permit has been deleted.

ATTACHMENT C

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Wallace McMullen, Energy Chair of Cumberland Chapter of the Sierra Club.

1. This Plant Will Aggravate Air Quality Problems

Although the Cash Creek permit is titled a Prevention of Significant Deterioration permit, it will in fact exacerbate air quality problems in the surrounding area.

The Indiana counties directly north of the proposed plant location, Warrick and Vanderburgh, are already in non-attainment for fine particles. This plant will aggravate the already existing air quality problems there. Please note that both the Warrick County Commissioners and the Newburgh Town Board have passed resolutions opposing Cash Creek due to its impact on the Warrick County non-attainment area. Nearby Evansville, Indiana, a metropolitan area with well over 100,000 residents will also be seriously impacted by proposed facility. It already is struggling with dirty air problems, which the Cash Creek plant will only aggravate.

Further, the EPA is the process of tightening the ozone standard. When the standard is tightened to 70 or 75 ppm from 84 ppm, Warrick and Vanderburgh counties will be further from meeting clean air standards, and Daviess County in Kentucky will be in non-attainment. (at 70 ppm) Permitting this plant to pump 965 tons per year of CO, 700 tons per year of NOx, plus volatile organic compounds, plus hazardous air pollutants, plus sulfuric acid mist into the air in this region is just digging deeper into the hole that these counties and their residents are already stuck down in.

Division's Response:

> *The Division acknowledges the comment. The air quality modeling has shown that there will not be any exceedances of any air quality standards as a result of this new construction. Kentucky regulations define when a source outside of a non-attainment area has a significant impact upon a nonattainment area. For $PM_{10,}$ this level is set at 1.0 ug /m^3 for an annual average and 5 ug /m^3 for a twenty-four hour average. Modeling for this facility predicts a maximum impact, at any location, of PM_{10} on an annual average basis of 0.31 ug /m^3 and a 24-hour average of 4.0 ug /$m^{3.}$ Since the maximum impact is less than the significance level for a nonattainment area, the Division had no further regulatory basis to perform additional analysis.*

2. This Plant Will Be Bad For Human Health

The pollutants this plant will emit will impair the air quality and thereby have an adverse impact on human health for people living within the affected airshed. Pollutants such as NOx, SOx, and sulfuric acid mist will aggravate asthma problems, tend to increase cases of cardiovascular disease, and increase heart attacks.

EPA's consultants estimate that fine particle pollution from power plants shortens the lives of 745 Kentuckians each year. Kentuckians already have the second highest risk in the country of dying from power plant pollution. Statewide, fine particle pollution from power plants also causes 16,440 asthma attacks every year, 798 of which are so severe they require emergency room treatment with associated lost workdays and school days.[1]

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[1] Abt Associates, "Power Plant Emissions: Particulate Matter-Related Health Damages and the Benefits of Alternative Emission Reduction Scenarios" June 2004.

Based on EPA data, each year, 110 lung cancer deaths and 1,022 heart attacks in Kentucky are attributable to power plant pollution.[2] The studies done by Abt Associates indicate that four premature deaths per year may result from the pollution emitted by this Cash Creek plant.[3]

Division's Response:

> *The Division acknowledges the comment. The air quality modeling has shown that there will not be any exceedances of any air quality standards as a result of this new construction.*

3. No Customers Depend On Electricity From This Plant

This is a merchant plant, proposed solely for the speculative premise that by the time it is built, it can sell electricity on the open market for a profit. ERORA does not have a defined service area containing customers for this plant. If it is not built, no one will suffer a lack of electricity, and this fact should have been considered in the alternatives analysis in considering BACT limits.

Division's Response:

> *The Division acknowledges the comment. The Division has no authority to approve or deny the construction of EGUs based on market demand. Comments of this nature should be addressed to the Kentucky Public Service Commission.*

4. BACT Limits on pollution

a. NOx BACT Limits

The Statement of Basis states at 4.5.3:

> Cash Creek selected SCR and nitrogen diluent to control NO_x emissions from the source. This combination of control processes with a NO_x emission limit of 0.0246 lb/MMBtu, based on a 24-hr rolling average represents BACT for the Cash Creek IGCC combustion turbines when firing syngas and natural gas.

But the permit itself is not consistent with the explanation in the Statement of Basis, as it shows a NOx limit of 0.0331 lb/mmBtu, three-hour rolling average, for burning syngas, and the limit of 0.0246 lb/mmBtu only for firing natural gas, but on a three hour rolling average.

A primary purpose of the statement of basis is to provide an explanation of the permitting authority's decisions. But when the statement of basis and the permit have completely different statements about the proper BACT limit, no one knows what is going on.
We expect that the Statement of Basis:

> …is an explanation of why the permit contains the provisions that it does and why it does not contain other provisions that might otherwise appear to be applicable. The purpose of the statement is to enable EPA and other interested parties to effectively review the permit by providing information regarding decisions made by the Permitting Authority in drafting the permit.[4]

In this case, that intent is completely violated. We suggest that probably the correct limit is 0.0246 lb/mmBtu or lower, on a three hour average for all potential fuels, but a re-working of both the Statement of Basis (SOB) and the NOx limits in the permit is needed before a correct permit can be

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[2] From C. A. Pope, et. al., Lung Cancer, Cardiopulmonary Mortality and Long-Term Exposure to Fine Particulate Air Pollution. Journal of the American Medical Association Vol. 287, no 9. - March 6, 2002. quoted at http://cta.policy.net/regional/ky/

[3] Abt Associates, *The Particulate-Related Health Benefitsof Reducing Power Plant Emissions*, (October 2000). Available online at: http://www.catf.us/publications/reports/Abt_PM_report.php

[4] Joan Cabreza, Memorandum to Region 10 State and Local Air Pollution Agencies, Region 10 Q &A #2: Title V Permit Development, March 19, 1996

issued.

Division's response:

Comment acknowledged, The NOx BACT limit for the combustion turbines is 0.0331 lb/MMBtu when firing synthesis gas, and 0.0246 lb/MMBtu when firing natural gas. Both limits are on a twenty-four hour rolling average. See the Revised Statement of Basis Section 4.5.3 and 4.6, Table 4-13. Also refer to Attachment A response to comment # 3.

b. Particulate Matter BACT

The draft permit proposes a total PM limit of 0.0217 lb/MMBtu, based on a stack test. This proposed total PM limit is higher than the total PM limit for Spurlock IV, which is 0.012 lb/MMBtu. KDAQ indicates in the Statement of Basis that emission controls such as Wet Electrostatic Precipitators and Wet Flue Gas Desulfurization (WFGD) are readily available to remove more particulate matter, but did not require them in the permit, and apparently did not require a full BACT analysis of more complete particulate control. The limit for Spurlock IV establishes that 0.012 lb/MMBtu is technologically feasible, and therefore that should be the maximum possible limit for Cash Creek, pending a more complete BACT analysis.

Electrostatic precipitators and WFGD are widely used as post-combustion controls on new and existing coal plants. KDAQ has not identified any technical reason why such controls could not be used on an IGCC plant. The PM BACT analysis must be redone with, at a minimum, a consideration of these controls. KDAQ must propose new PM limits reflecting the use of post-combustion controls in addition to pre-combustion syngas scrubbing, as well as BACT limits shown feasible by other plants such as Spurlock IV.

Division's response:

The Division does not concur. Spurlock IV is a coal-fired Circulating Fluidized Bed Combustion unit, while Cash Creek proposes to use integrated gasification combined cycle (IGCC) units. For an IGCC unit, precombustion control is required as an integral part of the operation of the turbine. The Division is not aware of any combined cycle turbines equipped with post combustion particulate controls nor of any determination that these controls are available for an IGCC unit.

c. $PM_{2.5}$ BACT.

The Draft Permit does not include a BACT limit for $PM_{2.5}$ emissions. Nor does it appear that KDAQ even considered such a limit. This is unlawful and must be corrected before a PSD permit can issue. The federal PSD program requires a BACT limit "for each pollutant subject to regulation under the Act that it would have the potential to emit in significant amounts." [40 C.F.R. § 52.21(j)(2)]. $PM_{2.5}$ is "a pollutant subject to regulation under the Act" because EPA established a NAAQS for $PM_{2.5}$ in 1997.[5] Moreover, $PM_{2.5}$ will be emitted from this facility in a "significant" amount because it will be emitted at "any emission rate." [40 C.F.R. § 52.21(b)(23)(ii)]. For these reasons a BACT limit for *$PM_{2.5}$* is required.[6] Nevertheless, the Draft Permit does not contain a BACT limit for *$PM_{2.5}$* emissions. This is a deficiency that must be corrected before a final PSD permit can be issued.

Division's response:

While the Division acknowledges that $PM_{2.5}$ is a regulated NSR pollutant, at this time EPA has not yet implemented NSR regulations for $PM_{2.5}$ NAAQS. It is well established that EPA

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[5] 62 Fed. Reg. 38711; 40 C.F.R. § 50.7.

[6] see 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j)

has proposed the interim use of PM_{IO} as a surrogate for $PM_{2.5}$ until NSR rules have been implemented. EPA has represented that:

"In view of the significant technical difficulties that now exist with respect to $PM_{2.5}$ monitoring, emissions, estimation, and modeling, EPA believes that PM_{IO} may properly be used as a surrogate for $PM_{2.5}$ in meeting NSR requirements until these difficulties are resolved. When the technical difficulties are resolved, EPA will amend the PSD regulations under 40 C.F.R. §51.166 and 52.21 to establish a $PM_{2.5}$ significant emissions rate and EPA will also promulgate other appropriate regulatory measures pertinent to $PM_{2.5}$, and its precursors."
Memorandum from John Seitz, Office of Air Quality Planning and Standards, "Interim Implementation of New Source Review Requirements for PM2.5" (October 21,1997).

This position was recently reaffirmed in specific guidance to the states:
"Using the surrogate $PM_{2.5}$ nonattainment major NSR program, States should assume that a major -stationary source's PM_{10}, emissions represent $PM_{2.5}$ emissions and regulate these emissions using either Appendix S or the States' SIP-approved nonattainment major NSR program."
Memorandum from Stephen Page, Office of Air Quality and Planning and Standards (April 5, 2005).

d. Cleaner Fuels

There are at least two fuels that are cleaner than synfuel that must be considered in the top-down BACT determination for each of the regulated pollutants, including particulate matter. The draft permit sets NOx and CO limits for when the facility is burning natural gas.

3 Hour Average	**Pollutant Limit**, Lb/MMbtu
NOx coal	0.0331
NOx natural gas	0.0246
CO coal	0.0485
CO natural gas	0.0449

These proposed limits when the project is firing natural gas are lower than the limits for firing synfuel. Therefore, the top-down BACT analysis must consider the use of cleaner fuels, including natural gas, as available clean fuels. Since the facility is specifically designed to be able to fire natural gas, alone or in combination with syngas, there is no argument that burning gas would "redefine the source."

Similarly, by burning a mix of natural gas with syngas, the source could lower both the pound-per-MMBtu emission rate and the hourly emission rate for each of the regulated pollutants, including PM. While natural-gas fired generation must be considered, as noted above, a BACT analysis must also consider mixing natural gas with syngas. If the cost effectiveness of combusting gas, or a combination of gas and syngas, is within the range generally accepted as cost-effective for similar sources (i.e., under $10,000 per ton of pollutant removed), the BACT limit for PM must be established based on a BACT analysis that factors in natural gas.

Another available clean fuel that has received no discussion in the agency's top-down BACT analysis is biomass. There are numerous examples of coal plants co-firing biomass that should be considered in the top-down BACT analysis. For example, the St. Paul heating plant burns approximately sixty percent biomass and forty percent coal.[7] The biomass is primarily waste wood from tree trimmings in the Twin Cities and other industrial activities. The Xcel Bay Point power plant in Ashland, Wisconsin, also burns large amounts of wood waste, consisting primarily of sawdust.

The U.S. Department of Energy has urged federal facility managers to consider co-firing up to 20 percent biomass in existing coal-fired boilers.[8] In the Netherlands, the four electricity generation companies (EPON, EPZ, EZH and UNA) have all developed plans to modify their conventional coal fired installations to accommodate woody biomass as a co-fuel.[9] The types of available biomass include wood wastes, agricultural waste, switchgrass and prairie grasses.[10] In Kentucky one might conceivably consider tobacco as a biomass feedstock

The BACT analysis must consider the burning of biomass, natural gas, and syngas in setting the limits for PM, NOx, and CO.

Division's response:

> *The Division does not concur. The IGCC process will use coal to produce synthesis gas (syngas) as the primary fuel (natural gas is a secondary fuel). The facility is specifically designed for synthesis gas as the primary fuel alone and not in combination with natural gas. The lower heating value of biomass has to date precluded its use as a feedstock for gasification.*

5. Monitoring and Enforceability Issues

a. Combustion Turbine Flu(sic) Opacity

The combustion turbine flu(sic) opacity has a limit of 20% (6 minute average), except for one 6-minute period per hour of not more that 27 %. However, no recordkeeping or reporting is called for in the permit, and there is not monitoring of the turbine exhaust opacity required in the Specific Monitoring Requirements section (Permit, pages 5 through 8). We do see a Testing Requirement with wording that seems to imply that compliance with the limit will be ignored, as there is no requirement for action if the limit is exceeded. Testing Requirements, p. 4:

> The permittee shall determine the opacity of emissions from the stack by U.S. EPA Reference Method 9 weekly, or more frequently if requested by the Division.

The opacity limit is not practicably enforceable without monitoring, recordkeeping, and reporting requirements. These requirements need to be added before the permit can be issued properly.

Division's response:

> *The Division does not concur. Monitoring and reporting have been and still are in the permit, however a requirement for recordkeeping, Section B 5(g) has been added to the permit. The opacity limits have been set pursuant to 40 CFR 60, Subpart Da. That regulation contains no monitoring, record keeping or reporting requirements. This permit does contain requirements for compliance certification and periodic reporting.*

[7] http://www.districtenergy.com/
[8] http://www1.eere.energy.gov/biomass/pdfs/33811.pdf
[9] http://www.eeci.net/archive/biobase/B10252.html
[10] http://www.nsf.gov/news/news_summ.jsp?cntn_id=108206

b. PM Compliance Assurance Monitoring and CEMS.
The permit is required to have Compliance Assurance Monitoring for PM10, as the facility will emit over 100 tpy of the pollutant. See 40 CFR Part 64. The draft permit, however, makes no mention of CAM for PM10. This omission must be fixed before a final permit can be issued.

KDAQ recently required the use of a PM CEMS in the PSD permit for the EKPC Spurlock 4 CFB project, and there is extensive experience of PM CEMS on coal plants as a result of numerous NSR settlements around the country. Therefore, KDAQ must also require the use of a PM CEMS in this permit.

Also, a PM CEMS will be required for determining continuing compliance with the permit's PM filterable limit. The permit must be revised to include these requirements before the permit can be issued properly.

Division's response:

> *For CAM to apply to a unit, three conditions must be met. The first is that pre controlled emissions are greater than a hundred tons per year, secondly that there is an emission standard, and lastly that there is a control device used for compliance. For emissions of PM/PM_{10} the first two conditions are met, but the last one is not. There is no active control device for PM/PM_{10}, therefore CAM is not required.*

6. Bulk Handling, Storage, Processing and Loadout Operations.

A. Emissions Limit
KDAQ did not include an emission limitation for Unit 7 (coal pile). Instead, the agency specified the use of use of certain controls and cites an approximate expected removal efficiency. (See the SOB at p. 19). BUT, BACT is an emission limitation. Controls like baghouses and methods such as "compaction" and "water suppression control methods" therefore do not constitute BACT, but are descriptions of how a source might reach a BACT limit. The permit should include specific numeric limits on material handling emissions. (The permit for Indeck-Elwood contains examples). Also, vague permit language regarding "reasonable precautions" as an operating limitation for Unit 7 is not a practicably enforceable requirement. (Permit at p. 24 of 51).[11]

Division's response:

> *The Division does not concur that BACT must be stated as a numerical limit. The definition of BACT includes design, equipment, work practice or operational standards or combination of standards approved by the Cabinet. The term "reasonable precautions" is the language of the regulation found at 401 KAR 63:010. Consistent with 401 KAR 51:017 the permit contains conditions which require the unit to be maintained and operated properly.*

B. Compliance Terms Should Be Clearly Defined
The term "reasonable precautions" is vague and not practicably enforceable. Therefore, the conditions in which the term is used must be modified to explicitly state what the applicant must do to be in compliance. These conditions include Unit 07 (coal handling), Condition 1(a); Unit 08 (cooling tower), Condition 1 (a) and 2(b); and Unit 10 (roadways), Condition 1(a).
Division's response:

> *The term "reasonable precautions" is contained in Kentucky's regulation 401 KAR 63:010.*

7. The IGCC Plant And Coal Mine Should Be Permitted As A Single Facility
The Statement Of Basis-states that "the primary coal supply is expected be provided by the Patriot Coal Company, which operates an existing underground and surface mining and processing

[11] See U.S. EPA Region 9, "Title V Permit Review Guidelines: Practical Enforceability," [Sept. 1999]

operation adjacent to the Cash Creek location. The coal will be delivered by a conveyor from the mine to an onsite receiving transfer-house."[12] KDAQ issued the Patriot coal processing facility a construction and operating permit, Permit No. S-06-333, on December 6, 2006. Due to the increased production at Patriot necessitated by Cash Creek,[13] and the interdependence of the two facilities, the mine and plant must be jointly evaluated as one major emissions source for the purposes of the PSD permit for Cash Creek. This means that in evaluating whether the Cash Creek source's emissions will be significant for determining incremental impacts and required controls, both facilities must be modeled together. Further, in determining the Cash Creek source's impact area for each pollutant and the impacts on visibility, plants, soils, and air quality related values of Class I areas, the two facilities must be modeled simultaneously to predict the overall impacts from the Cash Creek source.

Any attempt to model only impacts from the Cash Creek nominal 770 MW facility must be considered circumvention of the PSD permitting regulations and must not be allowed by KDAQ.

Division's response:

> *The Division does not concur that these facilities can be considered a single source under the PSD regulations. The Patriot coal company has four company-operated mines, serviced by three preparation plants in Union and Henderson counties in western Kentucky. The company sold 9.0 million tons of coal in 2006 and controls 866 million tons of reserves in the Illinois Basin. The Division knows of no common control between these two companies, nor would the adjacent mine be considered a support facility.*
>
> *The currently operating mine currently holds a "State-Origin" or minor source permit. Emissions consist almost exclusively as fugitive particulate emissions from the coal transfer operations. Even if the mine could be considered a common source, it would only have a trivial impact on the nearest class I and non-attainment areas.*

8. The emissions from this plant will pollute the surrounding water

Wabash River, IN, is one of the few IGCC plants that has been in operation for a number of years. It is approximately a third the size of the proposed Cash Creek plant. The waste streams from the gasification processes have created significant problems in the nearby water systems there. Operating the gasification process system at Cash Creek is likely to do the same, maybe three times worse, which will threaten the Green River.

The expected waste streams from an IGCC plant include, but are not limited to: un-recycled condensed water from the process, cooling tower blowdown; gasification plant process waste water; regeneration waste water from the demineralizer system in the power block; rainwater collected in the process blocks for both gasification and the power block; and equipment purges (blowdowns) and water wash-downs during maintenance procedures.

Trace elements from the coal feedstock are volatilized in the gasification process, and later condensed from the syngas. The processing of this sour condensate to remove dissolved gases will not remove all trace elements in the processed water stream

The experience at Wabash River indicates elevated levels of selenium, cyanide, and arsenic are to be

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[12] SOB, p.1

[13] According to an IEPA press release for the analogous ERORA Taylorville facility, this plant will consume approximately 1.8 million tons of coal per year. Patriot's three Western Kentucky mines together produced only 4 million tons of coal in 2004. See Peabody Energy Press Release, Nov. 9, 2005, "Patriot Coal Company Earns Reclamation Honors From the Kentucky Department of Natural Resources & Kentucky Coal Association," available at http://phx.corporate-ir.net/phoenix.zhtml?c=129849&p=irol-newsArticle&ID=780974&highlight=. Thus, the Cash Creek facility will require the Patriot mine to potentially more than double its production level, which will in turn significantly impact air emissions.

expected in any of the gasification process water which leaves the plant, as the process wastewater there has routinely exceed permissible daily maximum levels.[14]

Removal of trace elements, such as selenium, arsenic and cyanide can be effectively accomplished through the use of evaporation systems, but such control systems are not mentioned in this permit. If the pollution from the coal gasification process at this plant is to be effectively contained, pollution in the wastewater streams need to be controlled. Otherwise, the future quality of the Green River is seriously threatened by the Cash Creek plant.

Division's response:

The Division acknowledges the comment however, discharges into waters of the Commonwealth are regulated pursuant to KPDES permits not Title V/PSD permits.

9. A Decision To Grant This Permit Must Consider Global Warming Impacts

Carbon dioxide emissions and ensuing global warming effects clearly pose a threat to the health and welfare of humans, animals, and plants, as discussed below. The permit thus must ensure that emissions of carbon dioxide from the proposed facility are adequately controlled to avoid such impacts, under 401 KAR 63:020, "Potentially Hazardous Matter or Toxic Substances." However, neither KDAQ nor the applicant considered the impacts of carbon dioxide from the Cash Creek project. [See Statement of Basis p. 12 of 51, and Application, Section 8].

As the permit states, the proposed project is subject to 401 KAR 63:020, [See Permit p. 2 and 12 of 51], which defines "potentially hazardous matter or toxic substances" as "matter which may be harmful to the health and welfare of humans, animals, and plants, including, but *not limited to*, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials." Section 2(2) (emphasis added). According to the American Heritage Dictionary, "matter" is "[s]omething that has mass and exists as a solid, liquid, gas, or plasma."[15] Carbon dioxide clearly fits this definition. Furthermore, there can be no doubt that carbon dioxide emissions and the ensuing acceleration of global warming pose serious danger to humans and the environment. The U.S. EPA has concluded that "[a] few degrees of warming increases the chances of more frequent and severe heat waves, which can cause more heat-related death and illness," as well as "more frequent droughts, … greater rainfall, and possibl[e] change[s in] the strength of storms."[16] These are only a few of the threats posed by global warming.

The international scientific consensus has indicated that the earth's climate is changing and that human activity is a major factor. [International Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policy Makers*, hereinafter IPCC 2007, available at www.ipcc.ch]. The IPCC 2007 report goes on to note that:

- The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 180 ppm to 279 ppm in 2005.
- The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years (180-300 ppm) as determined from ice cores.
- The annual carbon dioxide concentration rate of increase was larger during the last ten years (1995-2005 average: 1.9 ppm) than it has since the beginning of continuous direct atmospheric measurements (1960 – 2005 average: 1.4 ppm per year). IPCC 2007.

[14] Wabash River Coal Gasification Repowering Project Final Technical Report

[15] "matter." (n.d.). *The American Heritage® Dictionary of the English Language, Fourth Edition*. Retrieved June 08, 2007, from Dictionary.com website: http://dictionary.reference.com/browse/matter

[16] U.S. EPA, climate change website, last updated on April 6, 2001, http://www.epa.gov/globalwarming/faq/fundamentals/html

Fossil fuel burning is the primary contributor to increasing concentrations of CO_2 (IPCC 2007).

"Warming of the climate system is now unequivocal." IPCC 2007. Eleven of the past twelve years (1995 – 2006) rank among the 12 warmest years in the instrumental record of global surface temperatures (since 1850). Id.

There can be no doubt that accelerating global warming will pose a serious danger to humans and the environment. Emissions of global warming pollutants have already doubled the risk of extreme heat waves, according to a team of scientists led by Peter Stott at the British MET Office.[17] As the scientific journal *Nature* reported, global warming pollution is linked to the European heat wave of 2003 that killed more than 15,000 people. Similarly, the U.S. EPA concludes that "[a] few degrees of warming increases the chances of more frequent and severe heat waves, which can cause more heat-related death and illness,"[18] as well as "more frequent droughts, … greater rainfall, and possibl[e] change[s in] the strength of storms."[19] These are only a few of the threats posed by global warming. The IPCC identified the following impacts as either "likely" or "very likely" to occur as CO_2 concentrations in the atmosphere increase:

- Higher maximum temperatures over most land areas;
- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures and fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- More intense precipitation events over many areas; and
- Increased summer dry conditions and associated risk of drought over most mid- latitude continents.[20]

The National Academy of Science (NAS) and EPA make similar predictions. [*Climate Change Science*; *CAR*, 106]. The IPCC quantifies these predictions as between 66 and 99% probable, depending on the specific environmental impact.[21] By any measure, global warming will cause serious negative impacts for humans and the environment.

The extent of negative global warming impacts will depend on the amount of CO_2 emitted into the atmosphere. The NAS similarly found that the "risk [to human welfare and ecosystems] increases with increases in both the rate and the magnitude of climate change."[22] Simply put, the more CO_2 humans release into the atmosphere, the more serious the impacts on the environment.

In 2001, the US Global Change Research Program released *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change,*[23] (*National Assessment Overview*) predicting effects of climate change for each region in the U.S. The report was authored by scientists from the U.S. Geological Survey, USDA Forest Service, and numerous universities across the nation. According to the National Assessment, effects on Kentucky are expected to be significant and severe. Increased average temperatures and increased evaporation are expected, potentially leading to net soil moisture declines. The *National Assessment* shows that "the

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[17] Stott, *et al.*, Human Contribution to the European Heatwave of 2003, *Nature* (432:610), Dec. 2, 2004.

[18] U.S. Environmental Protection Agency, climate change web site, last updated on April 6, 2001, http://www.epa.gov/globalwarming/faq/fundamentals.html.

[19] U.S. Environmental Protection Agency, climate change web site, last updated on April 6, 2001, http://www.epa.gov/globalwarming/faq/moredetail.html.

[20] Third Assessment Report (TAR), *The Scientific Basis*, 15 IPCC 2001.

[21] *TAR: The Scientific Basis*, 2

[22] *CAR*, 254

[23] National Assessment Synthesis Team, Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change, US Global Change Research Program, Washington DC, 2000 (National Assessment Overview).

changes in the simulated heat index for the Southeast [including Kentucky] are the most dramatic in the nation." [National Assessment Overview, p. 48]. With the increased heat, air pollution is also likely to worsen.[24] "Without strict attention to regional emissions of air pollutants, the undesirable combination of extreme heat and unhealthy air quality is likely to result." [*National Assessment Overview*, 55]. In other words, harmful air quality will accompany the heat increases predicted for Kentucky as a result of global warming.

These types of weather conditions, which will increase as global warming worsens, have already caused serious health, welfare, and economic problems in the region. For example, "[a] short-term heat wave in July 1995 caused the death of over 4,000 feedlot cattle in Missouri. The severe drought from Fall 1995 through Summer 1996 in the agricultural regions of the southern Great Plains resulted in about $5 billion in damages." *Id.* at 61.

According to the National Assessment, effects on Kentucky, as with the rest of the Southeast, are expected to be significant.in (sic) terms of human health: "of concern…are the effects that elevated surface temperatures have on human health as a result of prolonged or persistent periods of excessive summertime heat events coupled with droughty conditions."[25] Heat is not the only expected cause of health problems in Kentucky's region. Decreases in water quality are also expected, and "effects on surface waters of changes in precipitation have important health implications in the region. Increased precipitation promotes the transportation of bacteria as well as other pathogens and contaminants by surface waters throughout the region." *Id*. at p. 159. Unless releases of global warming pollution are curbed and then significantly decreased, global warming pollution will pose significant threats to the health, welfare, and economy of Kentucky.

Additionally, increases in global temperature may also cause flooding, which poses a direct threat to human health. [*TAR: Impacts*, 762]. Such floods pose a danger due to rising flood waters, but also due to the health threat posed by the agricultural and other non-point source pollution washed into surface water and groundwater supplied during floods. [*National Assessment Overview*, 54].

Kentucky agriculture is particularly sensitive to the degree of warming because of the existing threats of heat waves, flooding and drought. Unless releases of global warming pollution are curbed and then significantly decreased, global warming pollution will pose significant threats to the health, welfare, and economy of Kentucky.

Thus, KDAQ must make an individualized determination as to the proposed project's carbon dioxide emission potential and the adequacy of controls and/or procedures for controlling carbon dioxide pursuant to 401 KAR 63:020. The agency must do its part to prevent these dire health and environmental threats by prohibiting, or at a minimum mitigating, the 3-4,000,000 tons of CO2 pollution that would result from the proposed project annually. (Said another way, this project would add the carbon emissions from adding approximately 500,000 cars per year for each of the next fifty years.)[26]

In light of the serious adverse impacts of carbon dioxide emissions on human health and welfare, property, and the environment, KDAQ cannot lawfully refuse to exercise its authority in 401 KAR 63:020 to eliminate or limit carbon dioxide emissions in taking action on the proposed Cash Creek project permit. Indeed, the Supreme Court in the Massachusetts v. EPA decision makes clear that KDAQ may rely on 401 KAR 63:020 to eliminate or limit carbon dioxide emissions from the Cash Creek permit. [127 S. Ct. at 1455]. The Supreme Court also acknowledged "the enormity of the potential consequences associated with man-made climate change." Id. at 1458.

There are numerous opportunities for mitigating the carbon dioxide emissions associated

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[24] *TAR: Impacts*, 764

[25] *National Assessment* Chapter 5, "Potential Consequences of Climate Variability and Change for the Southeastern United States, p. 146."

[26] See EPA Office of Air and Radiation. Factsheet EPA420-F-00-013 "Average Annual Emissions and Fuel Consumption for Passenger Cars and Light Trucks: Emission Facts.

with the proposed project. First, the project could be designed to expeditiously capture and attempt to store underground in geologic formations a significant portion of the project's proposed CO2 emissions. The current proposal to have the project "capture ready" does nothing to deal with the critical questions facing the entire coal industry – whether large scale carbon sequestration can work, and if coal can have a future in a carbon-constrained world.

As another possibility, this new source of carbon dioxide could be conditioned on the closure of existing sources of carbon dioxide. Third, the project's efficiency (and reduce the need for fossil fuels generally) could be improved by co-locating an industry that could utilize the waste heat/steam, such as a new ethanol or bio-diesel plant.

KYDAQ must consider the global warming impacts from CO2 emissions associated with this proposed project: A) as a non-regulated criteria pollutant in the BACT analysis, and B) in the alternatives analysis under CAA Section 165.

Division's Response:

The Division does not concur. Carbon dioxide in and of itself is not considered a "potentially hazardous matter or toxics substances" under 401 KAR 63:020. BACT analyses are limited to regulated New Source Review pollutants pursuant to 401 KAR 51:001, Section 1 (25). Regarding the commenter's reference to CAA Section 165 (a) (2), no viable alternatives were presented during the public comment period for consideration by the Cabinet.

(a). Carbon Dioxide Must Be Considered In the BACT Collateral Impacts Analysis

Even in the current absence of USEPA regulating carbon dioxide, KYDAQ must still consider carbon dioxide as a non-regulated pollutant in the BACT analysis. This "collateral impacts" analysis is intended to target pollutants that are otherwise unregulated under the PSD provisions.

Division's response:

The Division does not concur. The definition of Best Available Control Technology found at 401 KAR 51:001 Section 1(25) is clear that BACT is required for "each regulated NSR pollutant that will be emitted from a proposed major stationary source or major modification… ." Major stationary source and major modification are also clearly defined according to emissions of regulated NSR pollutants for which a NAAQS has been promulgated, pollutants subject to a NSPS under Section 111 of the CAA, Class I and II substances subject to a standard under Section 602 of the CAA, and pollutants otherwise subject to regulation under the CAA. 401 KAR Section 51:001 Section 1(210).

No NAAQS or NSPS has been established for carbon dioxide (CO_2). CO_2 is not a Class I or II substance nor is it otherwise regulated under any provision of the CAA at this time. Therefore, no BACT analysis is required for CO_2 in this permit application and approval. Consideration of environmental impacts, referred to by the commenter as "collateral impacts," is a component of a BACT analysis. Because BACT is not applicable for CO_2, consideration of environmental impacts is also not applicable. Kentucky is required by statute to implement a PSD program that is no more stringent than federal requirements. KRS 224.10-100(26). Where there are no federal regulations establishing requirements for CO_2 at stationary sources, Kentucky is prohibited from imposing any such requirements.

i. A Stringent Output-Based Standard Would Minimize CO2 Emissions

Carbon dioxide emissions are directly related to the amount of coal burned. The more coal (or syngas) burned to produce a megawatt of electricity, the more carbon dioxide emitted. Similarly, the less coal burned the lower the emissions of regulated pollutants.

In the top-down BACT analysis for each regulated pollutant KYDAQ must consider output based limits.

As part of the new NSPS standards USEPA adopted output-based standards as a step towards minimizing inefficient and unnecessarily polluting boilers. In the analysis for the new NSPS standards USEPA identified that boiler efficiency can vary enormously. See Memo from Christian Fellner USEPA to Utility, Industrial and Commercial NSPS File, *Gross Efficiency of New Units* (February 2005). The following table from that same memo and identified as Table 2 describes the range of efficiencies:

USEPA further explained that the highest efficiency subbituminous, bituminous, and lignite facilities are 43, 38, 37 percent efficiencies respectively

In a paper presented by three USEPA combustion experts at the 2005 Pittsburgh Coal Conference they detailed the enormous difference in the efficiency (i.e. the CO2 emissions per ton of coal burned) between sub-critical, super-critical, ultra-supercritical and IGCC coal plants. See Sikander Khan et al, *Environmental Impact Comparisons IGCC vs. PC Plants* (Sept. 2005) (attached). Following is Table 2 from that paper:

To minimize the emissions of carbon dioxide KYDAQ should insert a permit provision requiring the project proponent to maintain a net thermal efficiency at or above 41 percent. Such a term would minimize both the emissions of regulated pollutants and the collateral emissions of carbon dioxide.

Division's Response:

The IGCC process has one of the highest thermal efficiencies of any current coal technology. The Division is unsure if the above quoted figures are current, as it is our understanding that General Electric (GE), the turbine supplier, has made some optimizations and improvements in their designs. The Division does not believe that a thermal efficiency term is appropriate pursuant to the PSD regulations.

ii. Clean Fuels Can Reduce Regulated Pollutants and CO2

Contrary to the plain language of the Act, the agency has not considered clean fuels in its BACT analysis. For some inexplicable reason the agency sets two BACT limits, one for syngas and one for natural gas. If the proposed facility can burn natural gas then it must be considered an available clean fuel in a top-down BACT analysis and may only rejected in favor of syngas in accordance with the procedures detailed in the 1990 NSR Manual. Similarly, there is no discussion of the feasibility of blending biomass into the fuel mix as a way to mitigate the emissions of criteria pollutants and "non-regulated pollutants," such as carbon dioxide. Every increment of additional natural gas or biomass that displaces syngas means less regulated pollutant emissions associated with the burning of syngas and less carbon dioxide emissions.

Division's Response:

See Response to Comment in Attachment C, number 4.d

iii. KYDAQ May Not Increase Emissions of Global Warming

KYDAQ is prohibited from granting this permit without mitigating the global warming impacts because it would allow the project proponent to emit carbon dioxide (and other greenhouse gases such as nitrous oxide) in such quantities that the carbon dioxide emissions and ensuing global warming effects clearly pose a threat to the health and welfare of humans, animals, and plants

Based on the discussion above, carbon dioxide constitutes air pollution and adding more global warming pollution will accelerate global warming and cause further harm human, plant and animal life. KYDAQ may not issue a permit that will cause additional injury to human health and the health of animal and plant life. Further, this is a merchant plant, which has no assigned block of customers dependant on electricity it generates. The CO2 it will generate will create unneeded harm with no countervailing benefit to the Commonwealth.

As demonstrated in the recent Springfield, IL, and Great Plains Energy settlements, it is possible to approve the construction of a new source of carbon dioxide conditioned on achieving overall carbon reductions through strategic investments in the retiring of existing sources, adding clean renewable generation, and boosting spending on energy efficiency measures.

Division's Response:

See Response to Comment in Attachment C, number 9.

(b). KYDAQ Must Consider Global Warming Under the Alternatives Analysis

CAA Section 165(a)(2) provides that a PSD permit may be issued only after an opportunity for a public hearing at which the public can appear and provide comment on the proposed source, including "alternatives thereto" and "other appropriate considerations." 42 U.S.C. § 7475(a)(2).

There are numerous options to building a new coal plant. As the City of Springfield, IL, and Kansas City Power & Light have demonstrated, it is possible to build new coal and through a combination of closing old, inefficient boilers, and investing energy efficiency and clean renewable energy curb overall carbon dioxide emissions.

If KYDAQ does elect to issue this permit, we urge the agency to condition approval of the proposed permit on agreement by the project proponent to curb overall CO2 emissions associated with providing electricity to its customers by 25 percent below 2005 levels by 2012 (i.e. meet the Kyoto Protocol reductions).

Division's Response:

See Response to Comment in Attachment C, number 9. The Division is expressly prohibited from promulgating administrative regulations or imposing permit conditions on the emission of carbon dioxide or other green house gases pursuant to the Kyoto Protocol for the purpose of reducing global warming until authorized by the General Assembly or by federal statute. KRS 224.20-125.

ATTACHMENT D

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Board of Commissioners of Warrick County Indiana.

The above referenced comments consisted of the following documents attached hereto as Attachment D-1:

Commissioner's Resolution 2005-08, passed by the Warrick County Commissioner passed on August 10, 2005.
Commissioner's Resolution 2007-05, approved by the Warrick County Commissioner on June 13, 2007.
Letter to Indiana Attorney General, Steve Carter, requesting a Section 126 Petition be prepared against the granting of the Cash Creek Permit.

Division's response:

The Division acknowledges the comments provided in the documents listed above. This permit is being issued pursuant to the applicable laws and regulations. The Division has reviewed the PSD Application from Cash Creek using the EPA recommended review procedures. As long as the proper procedures are followed regarding regulatory applicability and demonstration of compliance, a Title V/ PSD permit must be issued.

Emission limits and control technologies, as established in the permit, are in accordance with all applicable State and Federal requirements including BACT guidelines. AERMOD air dispersion modeling analysis was performed for criteria pollutants (NOx, SO_2, PM_{10} and CO) to determine the maximum ambient concentrations attributable to the proposed plant for each of these pollutants for comparison with National Ambient Air Quality Standards (NAAQS). All The criteria pollutants are modeled to be below the NAAQS.

While the letter to Attorney General Carter is included in the comments as requested by the Board of Commissioners, Attorney General Carter is the appropriate respondent to the letter rather than the Division.

ATTACHMENT E

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Newburgh Town Manager and the Town Council of Newburgh, Indiana.

The above referenced comments consisted of the following documents attached hereto as Attachment E-1:

Resolution 2007-08 adopted on June 13, 2007
Resolution 2001-7 dated September 19, 2001
Letter to Indiana Attorney General Steve Carter, requesting a Section 126 Petition be prepared against the granting of the Cash Creek Permit.

Division's response:

See Response to Comment in Attachment D.

ATTACHMENT F

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Jonathan Weinzapfel , Mayor of the City of Evansville, Indiana.

1. Require rigorous pollutant control and reduction strategies.
Require coal-fired power plants to utilize the most advanced technologies available to capture carbon and control and/or reduce emission of nitrogen oxides, sulfur dioxides, Volatile Organic Compounds and other pollutants consistent with the implementation of the Clean Air Interstate Rule by 2010, the Clean Air Visibility Rule by 2015, and the Clean Air Mercury Rule by 2020.

Division's Response:

The Division acknowledges the comment. All of the required Best Available Control Technology (BACT) analyses were performed and reviewed for all the emission units. The air quality modeling has shown that this project will not cause nor contribute to any exceedances of any air quality standards. This project will be required to meet the Clean Air Interstate Rule (CAIR), the Clean Air Visibility Rule (CAVR), and the Clean Air Mercury Rule (CAMR). At this time, carbon capture is not required by state or federal requirements and the Division has no authority to require carbon capture in a permit.

2. Conduct pre-construction and post-construction monitoring data for ozone and PM. This monitoring should encompass at least Henderson and Webster counties in Kentucky and Dubois, Gibson, Pike, Posey, Spencer, Warrick and Vanderburgh counties in Indiana (the Evansville MSA, plus the $PM_{2.5}$ non-attainment counties). It may not be necessary to install and operate new ozone and $PM_{2.5}$ monitors if the U.S. Environmental Protection Agency (EP A) will agree that certain existing monitors will suffice to determine any adverse air quality impacts.

This monitoring should not be limited to the new PSD/NSR sources, but should also be required to include any facility with actual or potential emissions of 100 tons per year of nitrogen oxides, sulfur dioxides and Volatile Organic Compounds.

Division's Response:

The Division does not concur. Preconstruction monitoring is required by regulation for sources that have modeled emissions for criteria pollutants that exceed significant impact levels (SILs). Cash Creek has shown through modeling that their operation will not exceed the SILs and thus preconstruction monitoring is not required. Kentucky maintains an extensive network of ambient air monitors to ensure the protection of the ambient air quality standards, including sites in Daviess, Hancock, Henderson, and Ohio counties. This network is designed and operated in accordance with U.S. EPA requirements. Ambient monitoring in Indiana is under the purview of the Indiana Department of Environmental Management.

3. Perform air quality impact modeling specifically for the above-mentioned counties.
This modeling should take into account the combined estimated emissions from all the proposed facilities with actual or potential emissions of 100 tons/year of nitrogen oxides, sulfur dioxides and Volatile Organic Compounds. This aggregated modeling should be performed in addition to performing modeling for each individual facility. Although modeling is not a perfect science, it is my understanding that it is the best predictive tool available at this time.

Division's Response:

The Division acknowledges the comment. Air quality modeling has been performed pursuant to all applicable requirements including 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality and 40 CFR 51, Appendix W, Guideline on Air Quality Modeling. Modeling for this permit included the area significantly impacted by Cash Creek. All sources that had been permitted or had submitted complete applications prior to the submittal of Cash Creek's complete application were considered.

4. I have long promoted a regional approach to economic development, realizing the benefits of such development reach far beyond the counties involved. However, to promote economic development at the cost of degraded air quality is short-sighted and in no one's best interest. Most major developments will not locate in a non-attainment area, as is evidenced by the number of facilities planned nearby but outside Vanderburgh and Warrick counties. I believe that environmental protection and economic development are not mutually exclusive, but are equally critical to our quality of life and our future.

There is an additional incentive to protect and improve air quality in that the U.S. EP A recently lowered the 24-hour $PM_{2.5}$ standard and is considering lowering the 8-hour ozone standard from 85 ppb to perhaps 70 ppb. If the ozone standard is revised and our air quality does not improve, it is very possible that portions of our Metropolitan Statistical Area, including those counties in Kentucky, may find themselves in the same non-attainment predicament as Dubois, Warrick and Vanderburgh. Future economic development will be stifled and existing facilities within the non-attainment area will find any future projects to be more difficult and expensive.

In conclusion, to merely rely on regulations is to ignore the regional nature of ozone and particulate formation and transport, and the regional nature of our economy. If we hope to see a beautiful, prosperous and healthy home for our children and grandchildren, we must go beyond the regulations and beyond business as usual. We must expect power plants to use the most advanced technologies available to minimize emission of harmful pollutants. Your agency has a critical role to play and I ask that you fulfill your responsibilities in a manner that benefits us all.

Division's Response:

The Division acknowledges the comment. Regional aspects of ozone and fine particulate matter transport are currently being addressed through the NOx SIP Call and will continue to be addressed through CAIR and CAVR. The Division does not have authority to extend requirements beyond promulgated regulations in a permitting action.

ATTACHMENT G

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Theodore J. Stransky, M.D to Governor Fletcher.

As you know, we have struggled to keep our air quality in attainment for many years. Even though Cash Creek is supposed to be an environmentally friendly power plant, according to the Evansville Courier, we can expect the following discharges every year:

Total particulate matter 415 tons
Fine particulate matter 68 tons
Sulfur dioxide 391 tons
Nitrogen oxide 704 tons
Volatile organic chemicals 32 tons
Sulfuric acid mist 67 tons

According to the enclosed article from the Evansville Courier of May 23,2007, we are already having ozone alerts and it is only May. How will we handle this added pollution? Will an existing, less environmentally friendly, power plant be shut down? As a physician you, better than most, understand the health effects this will have on the residents of our area and I would hope that would be your primary concern. I would be very interested in hearing your plan to protect our citizens on both sides of the Ohio.

Division's Response:

The Division acknowledges the comment. See Response to Comments in Attachment F, number 3.

ATTACHMENT H

Response to Comments

Comments on the Draft Title V Air Quality Permit submitted by Meleah A. Geertsma, Environmental Law and Policy Center, for the Sierra Club and Valley Watch Inc.

I. IF KDAQ PROCEEDS TO PROCESS THE PROPOSED DRAFT PERMIT, SIGNIFICANT REVISIONS ARE REQUIRED.

a. KDAQ Must Conduct a BACT Analysis for Carbon Dioxide and Set an Emissions Limitation for Carbon Dioxide in the Proposed Permit.

Neither ERORA nor KDAQ addressed the carbon dioxide (CO2) or other greenhouse gases to be emitted from the plant. Yet, the Cash Creek facility will be a significant emitter of greenhouse gas pollutants. Those emissions will contribute significantly to global warming and its adverse impacts on the health, welfare, economy and environment of the State(sic) of Kentucky, as well as the planet as a whole. For these reasons, KDAQ should, and indeed must under the Clean Air Act and Kentucky law, conduct a full BACT analysis for CO_2.

The federal Clean Air Act and Kentucky Air Quality Regulations prohibit the construction of a new major stationary source of air pollutants at the Cash Creek site except in accordance with a prevention of significant deterioration construction permit issued by KDAQ. Clean Air Act § 165(a), 42 U.S.C. § 7475(a); 401 KAR 51:017. KDAQ must conduct a BACT analysis and include in the construction permit BACT emission limitations "for each pollutant subject to regulation under [the Clean Air Act]" for which emissions exceed specified significance levels. Clean Air Act, §§ 165(a), 169,42 U.S.C. §§ 7475(a), 7479; 401 KAR 51:017. In 401 KAR 51 :017, KDAQ adopted, largely verbatim, the Environmental Protection Agency's ("EPA") Prevention of Significant Deterioration regulations set forth at 40 C.F.R. § 52.21. The EPA regulations provide that "[a] new major stationary source shall apply best available control technology <u>for each regulated NSR pollutant</u> that it would have the potential to emit in significant amounts." 40 C.F.R. § 52.21G)(1)(emphasis added); see also 401 KAR 51:017 Section 8. They also define "regulated NSR pollutant" as including "any pollutant. . . subject to regulation under the Act." Specifically, the regulation provides:

> Regulated NSR pollutant, for purposes of this section, means the following:
> (i) Any pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds are precursors for ozone);
> (ii) Any pollutant that is subject to any standard promulgated under Section III of the Act;
>
> (iii) Any Class I or Class II substance subject to a standard promulgated under or established by title VI of the Act; or
> (iv) Any pollutant that otherwise is subject to regulation under the Act; except that any or all hazardous air pollutants either listed in section 112 of the Act or added to the list pursuant to section 112(b)(2) of the Act, which have not been delisted pursuant to section 112(b)(3) of the Act, are not regulated NSR pollutants unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under section 108 of the Act.

40 C.F.R. § 52.21 (b)(50)(emphasis added); see also 401 KAR 51:001 Section 1(211). The statutory definition of BACT also makes clear that BACT requirements apply to all air pollutants subject to

regulation under the Clean Air Act. The definition states:

> Best available control technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

42 U.S.C. 7479(3); see also 40 C.F.R. § 52.21(b)(12), 401 KAR 51:001 Section 1(25). The BACT analysis review that KDAQ must conduct for each pollutant subject to regulation under the Clean Air Act must include a case specific review of relevant energy, environmental and economic considerations that is informed by detailed information submitted by the applicant. See 42 U.S.C. § 7479(3); 40 C.F.R. 52.21(b)(12), (n). Based on its BACT review, KDAQ must set emission limitations in its permit. See 42 U.S.C. § 7479(3) (BACT means "an emission limitation"); 40 C.F.R. 52.2 I (b)(12)(same); 401 KAR 51:001 Section 1(25).

It is undisputed that the Cash Creek project is subject to BACT requirements for a number of air pollutants for which emissions will exceed specified significance levels. See Cash Creek Permit Application at 4.1 (Cash Creek will emit PM/PM_{10}, SO_2, NOx, CO and H_2SO_4 in significant amounts for PSD/BACT purposes); see also Statement of Basis, Title V Draft Permit, No. V-07-017 (Apr. 30, 2007) at p.14. The proposed new facility clearly will result in carbon dioxide emissions in excess of any applicable BACT significance threshold.[1] See, e.g., Massachusetts Institute of Technology (2007), "The Future of Coal: options for a carbon constrained world," ("M.LT. Study") at p. 30, Table 3.5 (GE radiant cooled gasifier emits CO2 at a rate of 415,983 kg/hr), Attachment 1.[2]

The proposed permit is subject to BACT requirements for carbon dioxide because carbon dioxide is an "air pollutant" subject to regulation under the Clean Air Act. Section 302(g) of the Clean Air Act defines "air pollutant" expansively to include "any physical, chemical, biological, radioactive . . . substance or matter which is emitted into or otherwise enters into the ambient air." 42 U.S.C. § 7602(g)(emphasis added). In its April 2, 2007 opinion in Massachusetts v. EPA, the Supreme Court held that carbon dioxide and other greenhouse gases are air pollutants as defined in § 302(g), 42 U.S.C. § 7602(g). 127 S. Ct. at 1459-60. The Court based its holding on the "unambiguous" language of the definition. Id. at 1460. The Court further held that because carbon dioxide is within the Clean Air Act's definition of "air pollutant," EPA has the authority to regulate carbon dioxide under the Act. Id. at 1462. The Massachusetts v. EPA decision dispensed with any uncertainty whether carbon dioxide is an "air pollutant" under the Clean Air Act.[3]

Carbon Dioxide is "subject to regulation" under a number of the Clean Air Act's substantive provisions. These provisions include Section 202, which requires standards applicable to emissions of "any air pollutant" from motor vehicles, and Section 111[4], which requires standards of performance for emissions of "air pollutants" from new stationary sources. 42 U.S.C. §§ 7411, 7521. While EPA and the States have not yet established limits under those Clean Air Act provisions, they have the clear statutory authority to do so. Therefore, carbon dioxide is undeniably

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[1] Section 52.21(b)(23)(i), 40 C.F.R., does not set forth a significance level for carbon dioxide. Therefore, pursuant to 40 C.F.R. § 52.21(b)(23)(ii), any emissions of carbon dioxide are significant.

[2] The Attachment consists of Chapter 3, "Coal-based Electricity Generation." The full text report is available at web.mit.edu/coal/The_Future_of_Coal.pdf.

[3] EPA's then general counsel, Jonathan Z. Cannon, opined in 1998 that carbon dioxide is within the Clean Air Act's definition of "air pollutant" and that EPA has the authority to regulate carbon dioxide. More recently, however, EPA has advanced a contrary interpretation that is contrary to the plain language of Section 302(g) and the Massachusetts v. EPA opinion

"subject to regulation" under the Act. The plain meaning of Section 165(a)(4) of the Clean Air Act's mandate that BACT applies to "each pollutant subject to regulation under [the Clean Air Act]" extends not only to air pollutants for which the Act itself or EPA or the States by regulation have imposed requirements, but also to air pollutants for which EPA and the States possess but have not exercised authority to impose such requirements. Regulation under Sections 202 and 111 is required where air pollution "may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7411(b)(1)(A); 42 U.S.C. § 7521(a)(1). The Supreme Court's holding in Massachusetts v. EPA dispensed with any uncertainty whether EPA and the States have the authority to take action to control carbon dioxide emissions under Sections 202 and 111.

The Massachusetts v. EPA case specifically involved a challenge to EPA's failure to prescribe regulations on carbon dioxide emissions from motor vehicles under Section 202 of the Clean Air Act. The Court held that EPA has the authority to issue such regulations, and rejected the excuses advanced by EPA for failing to do so. 127 S. Ct. at 1459-63. Following the Court's decision, the President, in a May 14, 2007 Executive Order, acknowledged EPA's authority to regulate emissions of greenhouse gases, including carbon dioxide from motor vehicles, nonroad vehicles and nonroad engines under the Clean Air Act. The Executive Order directs EPA to coordinate with other federal agencies in undertaking such regulatory action.

Moreover, in addition to being subject to regulation under sections 111 and 202 of the Act, carbon dioxide is currently regulated under Section 821 of the Clean Air Act Amendments of 1990. That section required EPA to promulgate, within 18 months after enactment of the Amendments, regulations to require certain sources, including coal-fired electric generating stations, to monitor carbon dioxide emissions and report monitoring data to EPA. 42 U.S.C. §7651k note. In 1993 EPA promulgated such regulations, which are set forth at 40 C.F.R. Part 75. The regulations generally require monitoring of carbon dioxide emissions through installation, certification, operation and maintenance of a continuous emission monitoring system or an alternative method (40 C.F.R. §§ 75.1(b), 75.10(a)(3)); preparation and maintenance of a monitoring plan (40 C.F.R. § 75.33); maintenance of certain records (40 C.F.R. § 75.57); and reporting of certain information to EPA, including electronic quarterly reports of carbon dioxide emissions data (40 C.F.R. §§ 75.60 – 64). Section 75.5, 40 C.F.R., prohibits operation of an affected source in the absence of compliance with the substantive requirements of Part 75, and provides that a violation of any requirement of Part 75 is a violation of the Clean Air Act.[5]

EPA and the State's regulations cited above echo the mandate of Section 165(a)(4) of the Clean Air Act that BACT applies not only to pollutants for which regulatory requirements have been imposed, but also to air pollutants for which EPA and the States possess but have not exercised authority to impose regulatory requirements.[6] The regulations provide that BACT applies not only to air pollutants for which there are national ambient air quality standards under Section 109 of the Act, standards of performance for new sources under Section 111 of the Act, or standards under or established by Title VI of the Act (relating to acid deposition control), but also to "[a]ny pollutant that is otherwise subject to regulation under the Act." 40 C.F.R. §52.21(b)(50). Carbon dioxide is an

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[4] A challenge to EPA's failure to establish emission limits for carbon dioxide emissions from power plants under Section 111 of the Clean Air Act is pending before the United States Court of Appeals for the District of Columbia Circuit. State of New York, et al. v. EPA, No. 06-1322. EPA refused to establish such emission limits solely on the ground that EPA lacked the authority to regulate carbon dioxide under the Clean Air Act. Based on Massachusetts v. EPA, petitioners, on May 2, 2007, asked the Court of Appeals to vacate EPA's determination that it lacks authority to regulate carbon dioxide emissions under Section 111, and to remand the matter to EPA for further proceedings consistent with the Massachusetts v. EPA decision.

[5] The Kentucky Air Quality Regulations have adopted the carbon dioxide monitoring requirements of 40 C.F.R. Part 75. 401 KAR 52:060 Section 2(d) (Acid Rain Permits); 401 KAR 51:160 (NOx requirements for large utility and industrial boilers); 401 KAR 51:210 and 220 (CAIR NOx trading program).

[6] Indeed, EPA and KDAQ lack the authority to promulgate regulations diluting the mandate of Section 165(a)(4) of the Clean Air Act

air pollutant subject to regulation under the Clean Air Act for which KDAQ must comply with BACT requirements.

The proposed permit for the Cash Creek project does not contain a BACT emissions limitation for carbon dioxide. KDAQ has not conducted a BACT analysis for carbon dioxide. KDAQ has made no effort to identify or evaluate available "production processes or available methods, systems and techniques for control of carbon dioxide." See 40 C.F.R. § 52.21. KDAQ has failed to do so. KDAQ conducted and ERORA in its permit application submitted no BACT analysis for carbon dioxide.

KDAQ's failure to conduct a BACT analysis for carbon dioxide and establish an emission limitation for carbon dioxide must be rectified before KDAQ may lawfully issue a permit for the Cash Creek project. Such analysis must necessarily include all operations planned at the site. It appears that ERORA has not provided KDAQ relevant information as part of its permit application sufficient to allow KDAQ to conduct the required analysis. If KDAQ declines to deny the requested permit at this time, KDAQ should request ERORA to provide it with all information necessary to conduct a BACT analysis for carbon dioxide, conduct the required BACT analysis, and issue a revised proposed permit containing the required carbon dioxide BACT emission limitation.

Division's response:

The Division does not concur. The definition of Best Available Control Technology found at 401 KAR 51:001 Section 1(25) is clear that BACT is required for "each regulated NSR pollutant that will be emitted from a proposed major stationary source or major modification… ." Major stationary source and major modification are also clearly defined according to emissions of regulated NSR pollutants for which a NAAQS has been promulgated, pollutants subject to a NSPS under Section 111 of the CAA, Class I and II substances subject to a standard under Section 602 of the CAA, and pollutants otherwise subject to regulation under the CAA. 401 KAR Section 51:001 Section 1(210).

No NAAQS or NSPS has been established for carbon dioxide (CO_2), CO_2 is not a Class I or II substance nor is it otherwise regulated under any provision of the CAA at this time. Therefore, no BACT analysis is required for CO_2 in this permit application and approval. Kentucky is required by statute to implement a PSD program that is no more stringent than federal requirements. KRS 224.10-100(26). Where there are no federal regulations establishing requirements for CO_2 at stationary sources, Kentucky is prohibited from imposing any such requirements.

i. The CO_2 BACT analysis must consider capture and sequestration.

ERORA must evaluate as BACT for Cash Creek add-on technologies to capture and sequester the greenhouse gas emissions. The U.S. Department of Energy is the primary federal agency working on research and development of CO2 capture and sequestration technologies, and thus information on carbon capture and sequestration technologies is available on the U.S. DOE website.[7]

Capture. The International Panel on Climate Change ("IPCC") issued a report in 2005 discussing the main options currently available to capture $CO_2$from fossil fuel-fired power plants, including pre-combustion capture used at IGCC facilities.[8] According to the IPCC, commercial CO_2 capture

[7] See http://www.fossil.energy.gov /programs/sequestrationl capture/.
[8] 2005 IPCC Special Report on Carbon dioxide Capture and Storage, Technical Summary, at 25. See also Chapter 3 of this report. (Both the Technical Summary and Chapter 3 are included as Attachment 2; entire document is available at http://arch.rivm.nl/env/int/ipcc/pages_medialSRCCSfinallIPCCSpecialReportonCarbondioxideCaptureandStorage.htm).

systems installed on IGCC facilities can reduce CO_2 emissions by 90% per kilowatthour.[9] CO_2 capture systems are available today and have been applied to several small power plants.[10] KDAQ must require ERORA to evaluate the available CO_2 capture systems and to evaluate such CO_2 control systems at the proposed IGCC facility in a proper top-down BACT process focused on maximum reduction of CO_2. ERORA has clearly been evaluating these technologies, as the Cash Creek facility will utilize the Selexol process for sulfur dioxide removal, a process which can also be used to separate carbon dioxide from flue gas. See, e.g., M.LT. study at p. 34.[11]

Sequestration. Nor has ERORA submitted any evaluation of the potential for transporting and sequestering carbon, such as through injection to enhance recovery of oil and gas from sites nearby the proposed Owensboro location or the construction of a pipeline for injection to other appropriate sites.

Division's response:

See response to Comment I. a. above.

ii. The CO_2 BACT analysis must set a stringent output-based standard.

Carbon dioxide emissions are directly related to the amount of coal burned. Because electric generating plants are planned and operated to provide a specific amount of electricity, the more coal (or syngas) burned to produce a megawatt of electricity, the more carbon dioxide emitted. Similarly, the less coal burned the lower the emissions of regulated pollutants. In the top-down BACT analysis for each regulated pollutant IEP A must consider output based limits. . In short, more efficiency electrical generation must be considered in a BACT determination because it is a "production process and available method, system and technique... for control of each pollutant." 42 U.S.c. § 7479(3).

As part of the new NSPS standards U.S.EPA adopted output-based standards as a step towards minimizing inefficient and unnecessarily polluting boilers. In the analysis for the new NSPS standards USEPA identified that boiler efficiency can vary enormously.[12] The following table from that same memo and identified as Table 2 describes the range of efficiencies:

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[9] Id. at 107 (Chapter 3).

[10] Id

[11] Both ERORA and KDAQ completely omitted Selexol's significance for capture of carbon dioxide from the Cash Creek BACT analyses. The BACT analyses instead discuss only the process' ability to remove sulfur dioxide as its main function, as well as regeneration of solvent and production of wastewater steam under the heading "Environmental Evaluation." Cash Creek Application at 4.6.8.3

[12] See Memo from Christian Fellner USEPA to Utility, Industrial and Commercial NSPS File, Gross fficiency of New Units (February 2005).

Table 2: EIA 2003 Annual Efficiency Values

Percent of Units Operating at or Above Gross Efficiency	Net Efficiency
Top 10%	35.0%
Top 20%	34.0%
Top 25%	33.6%
Top 33%	33.2%
Top 50%	32.0%

USEPA further explained that the highest efficiency subbituminous, bituminous, and lignite facilities are 43, 38, 37 percent respectively. In a paper presented by three USEP A combustion experts at the 2005 Pittsburgh Coal Conference they detailed the enormous difference in the efficiency (i.e., the CO2 emissions per ton of coal burned) between sub-critical, super-critical, ultra-supercritical and IGCC coal plants.[13] Following is Table 2 from that paper:

To minimize the emissions of carbon dioxide KDAQ should insert a permit provision requiring the project proponent to maintain a net thermal efficiency at or above 41 percent, or set an emission rate limit in pounds per MWh that is based on 41 % efficiency. Such a term would minimize both the emissions of regulated pollutants and the collateral emissions of carbon dioxide.

Division's Response:

The IGCC process has one of the highest thermal efficiencies of any current coal technology. The Division is unsure if the above quoted figures are current, as it is our understanding that General Electric (GE), the turbine supplier, has made some optimizations and improvements in their designs. The Division does not believe that a thermal efficiency permit term or condition is required nor appropriate pursuant to the PSD regulations.

b. The Permit Must Ensure that the Facility Will Not Emit Carbon Dioxide at Such Quantities or Duration as to be Harmful to the Health and Welfare of Humans, Animals and Plants.

Carbon dioxide emissions and ensuing global warming effects clearly pose a threat to the health and welfare of humans, animals, and plants. The permit thus must ensure that emissions of carbon dioxide from the proposed facility are adequately controlled to avoid such impacts, pursuant to 401 KAR 63:020, "Potentially Hazardous Matter or Toxic Substances." Neither the applicant nor KDAQ complied with this requirement by considering the impacts of carbon dioxide from the Cash Creek project. See App. Section 8; Statement of Basis p. 12 of 51.

As the permit states, the proposed project is subject to 401 KAR 63:020. Permit at pp. 2 and 12 of 51. The regulation defines "potentially hazardous matter or toxic substances" as "matter which may be harmful to the health and welfare of humans, animals, and plants, including, but *not limited to,* antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials." Id. at Section 2(2) (emphasis added). According to the American Heritage Dictionary, "matter" is "[s]omething that

[13] See Sikander Khan et al, *Environmental Impact Comparisons IGCC vs. PC Plants* (Sept. 2005). Available at: http://cfpub.epa.gov/si/osp_sciencedisplay.cfm?dirEntryID=139864&ActType=project&kwords=Waste

has mass and exists as a solid, liquid, gas, or plasma."[14] Carbon dioxide clearly fits this definition. Furthermore, there can be no doubt that carbon dioxide emissions and the ensuing acceleration of global warming pose serious danger to humans and the environment. The U.S. EPA has concluded that "[a] few degrees of warming increases the chances of more frequent and severe heat waves, which can cause more heat-related death and illness,"[15] as well as "more frequent droughts, ... greater rainfall, and possible changes in the strength of storms."[16] These are only a few of the threats posed by global warming.

The IPCC identifies the following impacts as either "likely" or "very likely" to occur as CO2 concentrations in the atmosphere increase:

- Higher maximum temperatures over most land areas;
- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures and fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- More intense precipitation events over many areas; and
- Increased summer dry conditions and associated risk of drought over most mid latitude continents.[17]

The extent of negative global warming impacts will depend on the amount of CO2 emitted into the atmosphere. However, the fact of those negative impacts is certain. The National Academies of Science, in the report "Climate Change Science" (2001), found that the "risk [to human welfare and ecosystems] increases with increases in both the rate and the magnitude of climate change."[18] Simply put, the more CO2 humans release into the atmosphere, the more serious the impacts on the environment.

In 2001, the U.S. Global Change Research Program released *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change (National Assessment)* predicting effects of climate change for each region in the U.S.[19] The report was authored by scientists from the U.S. Geological Survey, USDA Forest Service, and numerous universities across the nation. The *National Assessment* shows that "the changes in the simulated heat index for the Southeast [including Kentucky] are the most dramatic in the nation." *National Assessment Overview,* p. 48. With the increased heat, air pollution is also likely to worsen.[20] "Without strict attention to regional emissions of air pollutants, the undesirable combination of extreme heat and unhealthy air quality is likely to result." *National Assessment Overview,* p. 55. In other words, harmful air quality will accompany the heat increases predicted for Kentucky as a result of global warming.

According to the National Assessment, effects on Kentucky, as with the rest of the Southeast, are expected to be significant in terms of human health: "of concern.. .are the effects that elevated surface temperatures have on human health as a result of prolonged or persistent periods of excessive summertime heat events coupled with droughty conditions." *National Assessment,* p.

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[14] "matter." (n.d.). *The American Heritage@ Dictionary of the English Language. Fourth Edition.* Retrieved June 08, 2007, from Dictionary.com website: http://dictionary.reference.comlbrowse/matter
Dictionary.com website: http://dictionary.reference.comlbrowse/matter
[15] U.S. EPA, climate change website, last updated on April 6, 2001, http://www.epa.gov/globalwarming/faq/fundamentals/html
[16] U.S. EPA, climate change website, last updated on April 6, 2001, http://www.epa.gov/globalwarming/faq/moredetail/html
[17] International Panel on Climate Change, *Climate Change 2007: The Physical Science Basis. Summary for Policy Makers,* hereinafter IPCC 2007 (attached and available at www.ipcc.ch)
[18] Committee on the Science of Climate Change, National Research Council, "Climate Change Science: An Analysis of Some Key Questions," National Academies Press (200 I)
[19] National Assessment Synthesis Team (2000), available at http://globalchange.gov/pubs/nasC2000.html
[20] IPCC, Third Assessment Report, "Climate Change 2001: Impacts, Adaptation, and Vulnerability," p. 764, available at http://www.grida.no/climate/ipcc_tar/

146.[21] Heat is not the only expected cause of health problems in Kentucky's region. Decreases in water quality are also expected, and "effects on surface waters of changes in precipitation have important health implications in the region. Increased precipitation promotes the transportation of bacteria as well as other pathogens and contaminants by surface waters throughout the region." Id. at p. 159. Unless releases of global warming pollution are curbed and then significantly decreased, global warming pollution will pose significant threats to the health, welfare, and economy of Kentucky.

Thus, KDAQ must make an individualized determination as to the proposed project's carbon dioxide emission potential and the adequacy of controls and/or procedures for controlling carbon dioxide pursuant to 401 KAR 63:020. The agency must do its part to prevent these dire health and environmental threats by prohibiting, or at a minimum mitigating, the 3-4,000,000 tons of CO2 pollution that would result from the proposed project annually. Said another way, this project would add the carbon emissions from adding approximately 500,000 cars per year for each of the next fifty years.[22]

In light of the serious adverse impacts of carbon dioxide emissions on human health and welfare, property, and the environment, KDAQ cannot lawfully refuse to exercise its authority 401 KAR 63:020 to eliminate or limit carbon dioxide emissions in taking action on the proposed Cash Creek project permit. Indeed, the Supreme Court in Massachusetts v. EP A, even without the benefit of the most recent IPCC Reports, noted that the "[t]he harms associated with climate change are serious and well recognized." 127 S. Ct. at 1455. The Supreme Court also acknowledged "the enormity of the potential consequences associated with man-made climate change." Id. at 1458. The Massachusetts v. EPA decision makes clear that KDAQ may rely on 401 KAR 63 :020 to eliminate or limit carbon dioxide emissions from the Cash Creek permit.

Division's Response:

The Division does not concur. Carbon dioxide in and of itself is not considered a "potentially hazardous matter or toxics substances" under 401 KAR 63:020. BACT analyses are limited to regulated New Source Review pollutants pursuant to 401 KAR 51:001, Section1 (25).

c. The BACT Limits are Not Supported.

i. Combustion Turbine versus Gasifier Heat Input

As a general matter, the permit record does not adequately document how the numeric limits were determined. The permit sets limits based on heat input to the combustion turbine. See SOB at Table 4-13; Permit at pp. 3-4 of 51. The application proposes limits based on heat input to the gasifier. App. Section 4. The SOB does not provide any background information on or calculations showing how KDAQ converted the gasifier-heat input limits to combustion turbine heat input limits.

Division's response:

Comment acknowledged. Refer to Cash Creek's November 30, 2006 supplemental submittal attachment 1, Table 4-22, page 4-67 for the applicant's heat input specifications. The Division did not convert gasifier heat input limits to combustion turbine heat input limits. Both specifications are inherent to the process equipment.

ii. Cleaner Fuels.

[21] Chapter 5, "Potential Consequences of Climate Variability and Change for the Southeastern United States"

[22] See EPA Office of Air and Radiation. Factsheet EPA420-F-00-013 "Average Annual Emissions and Fuel Consumption for Passenger Cars and Light Trucks: Emission Facts.

Cleaner Fuels. BACT explicitly requires a comprehensive analysis of control options that results in "an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation [under the PSD program]... achievable for [a] facility through. . *fuel cleaning* [and] *clean fuels.* .." 42 U.S.C. § 7479(3) (emphases added). In other words, "the 1990 Clean Air Act amendments.. .expressly require consideration of clean fuels in selecting BACT" and the EP A considers clean fuels as "an available means of reducing emissions to be considered along with other approaches to identifying BACT level controls." In re: Inter-Power of New York. Inc., 1994 EPA App. LEXIS 33,40,5 E.A.D.130, 134 (E.A.B. 1994)[23]. Longstanding EPA policy with regard to BACT has "required that a permit writer examine the inherent cleanliness of the fuel." Inter-Power at 134. KDAQ's policy likewise is to consider the use of clean fuels in BACT determinations. *See* Andrews Dep. taken in Sierra Club, et al. v. EPPC, File No. DAQ-27602042, Permit No. V-02-043 R2, at pp.39, cited in Petitioners' Memorandum In Support of Motion for Summary Judgment On Counts 2, 4,5, 7, 8, 10, 11, 12, 15, 16, 17, 18,24, and 25, submitted Sept. 1, 2006.[24]

The permit contains separate NOx limits for firing natural gas versus syngas. See below, NOx BACT, for comments on natural gas and NOx BACT.
An available clean fuel that has received no discussion in the agency's top-down BACT analysis is biomass. Co-firing biomass at an IGCC plant can result in lower emissions of NOx, SO_2, and PM/PM_{10}.[25]

There are numerous examples of coal plants co-firing biomass that should be considered in the top-down BACT analysis. For example, the St. Paul heating plant bums approximately sixty percent biomass and forty percent coal.[26] The biomass is primarily waste wood from tree trimmings in the Twin Cities and other industrial activities. The Xcel Bay Point power plant in Ashland, Wisconsin, also bums large amounts of wood waste, consisting primarily of sawdust. Burning biomass also is consistent with Governor Fletcher's recent commitment to expand the use of biofuels.

Cleaner Fuels
The U.S. Department of Energy has urged federal facility managers to consider co-firing up to 20 percent biomass in existing coal-fired boilers.[27] In the Netherlands, the four electricity generation companies (EPON, EPZ, EZH and UNA) have all developed plans to modify their conventional coal fired installations to accommodate woody biomass as a co-fuel.[28] The types of available biomass include wood wastes, agricultural waste, switchgrass and prairie grasses.[29]

Division’s response:

The Division does not concur. The IGCC process will use coal to produce synthesis gas (syngas) as the primary fuel (natural gas is a secondary fuel). The facility is specifically designed for synthesis gas as the primary fuel alone and not in combination with natural gas. The lower heating value of biomass has to date precluded its use as a feedstock for gasification. At this time even the use of lignite and subbituminous coals, which have higher

[23] “The phrase ‘clean fuels’ was added to the definition of BACT in the 1990 Clean Air Act amendments. EPA described the amendment to add ‘clean fuels’ to the definition of BACT at the time the Act passed, ‘as *** codifying its present practice, which holds that clean fuels are an available means of reducing emissions to be considered along with other
[24] “[fuel cleaning and/or clean fuels are] just part of the BACT analysis.”
[25] See, e.g., Tampa Electric Company, “Biomass Test Burn Report Polk Power Station Unit 1,” (Apr. 2002) at p. 10 (showing lower NOx and SO_2 emissions for biomass test burn periods versus baseline), available at
http://www.treepower.org/cofiring/main.html, As KY measures PM/PM_{10} to include condensable PM, then a reduction in NOX and SO_2 would be a reduction in PM/PM_{10} also.
[26] http://www.districtenergy.com/
[27] http://www1.eere.energy.gov/biomass/pdfs/33811.pdf
[28] http://www.eeci.net/archive/biobase/B10252.html
[29] http://www.nsf.gov/news/news_summ.jsp?cntn_id=108206

heating values than biomass, have presented severe technical problems.

iii. PM BACT

The permit sets a limit for filterable PM/PM_{10} of 0.00851b/MMBtu and a limit for total particulate/PM_{10} of 0.0217 Ib/MMBtu. Permit at p. 4 of 51.

Averaging Time. As an initial matter, these limits lack an averaging time. The application proposes a 3 hour averaging time. App. at p. 4-36. This averaging time should be included in the permit.

Division's response:

Comment acknowledged, the averaging time for the PM standards are now included in the permit.

Basis for Total PM/PM_{10} Limit. The proposed filterable PM limit is nearly identical to the filterable PM limit in the final PSD permit for the EKPC Spurlock 4 CFB unit. However, the proposed total PM limit here is higher than the total PM limit for the Spurlock 4 facility (0.012 lb/MMBtu). The applicant does not provide a total PM limit that includes condensable particulate matter, but instead discusses condensable matter from IGCC technology and proposed a method for establishing a total PM_{10} limit based on actual operating data. App. at 4-37. KDAQ included a numeric total particulate/PM_{10} permit limit of 0.0217 Lb/MMBtu[30], but failed to provide the basis for this limit in the Statement of Basis. KDAQ must explain how it determined the *PM/PM_{10}* Total limit.

Division's response:

The Division acknowledges the comment. The basis for the proposed BACT limit is discussed in the supplemental application dated November 30, 2006, Section 4.6.2.5. The Statement of Basis has been expanded to discuss the selection in greater detail.

Combination/Post-Combustion Controls. The PM BACT analysis fails to consider post combustion controls in combination with pre-combustion IGCC wet syngas scrubbing. Contrary to the applicant's assertion, BACT does not automatically allow the rejection of all technologies other than the single control associated with "highest removals" selected by the applicant. *See,* e.g., App. at 4-34 and 4-38. Rather, combinations of controls must be considered. Considering only a single control option is both in conflict with the definition of BACT and with common practice. The definition of BACT uses the plural for control options that must be analyzed towards achieving the "maximum degree of reduction…achievable" (BACT is based on "application of production processes or available methods, systems, and techniques.") Nowhere does the definition of BACT allow the selection of a single control option to the exclusion of all others. Rather, available control options are only rejected in a top-down analysis process. The EAB has held numerous times that BACT must reflect an assessment of all available options to achieve the maximum degree of reduction of each pollutant subject to regulation, and should not be limited to a comparative assessment of add-on controls.[31] In addition, permits in practice set BACT limits based on use of several control options. In fact, the applicant itself proposed, and KDAQ accepted, a NOx BACT limit based on use of combustion control (diluent injection) *and* post-combustion control (SCR). *See* App. at pp. 4-57 to 4-59; SOB at p. 26; Permit at p. 3 of 51.

The applicant mentions several post-combustion PM control technologies, but provides neither technical nor economic reasons justifying why post-combustion PM control in combination with pre-combustion IGCC wet syngas scrubbing does not constitute BACT. KDAQ must deny the permit and request that the applicant provide such justification in a proper top-down BACT analysis or propose new PM limits reflecting the use of

[30] See, e.g., SOB at p. 19 (discussing *PM/PM_{10}* (filterable) limit of0.0063IbIMMBtu) and 26 *(PM/PMIO* Total limit of 0.0217 Ib/MMBtu).

[31] *See* In re Knauf Fiber Glass, Gmbh, 8 E.A.D. 121, 129 (EAB 1999) (KnaufI) (citing NSR Manual at 8.10, 8.13); In re Old Dominion Elec. Coop., 3 E.A.D. 779 (EAB 1992); Inter-Power of New York, 5 E.A.D. at 135-136; In re CertainTeed Corp., 1 E.A.D. 743 (EAB 1982) at 2-5.

post-combustion controls in addition to pre-combustion wet syngas scrubbing.

Division's response:

The Division does not concur. The particulate BACT limit for Cash Creek is based on the pre-combustion scrubbing of the synthesis gas. This is an inherent, necessary part of the process because the synthesis fuel must be cleaned before it is combusted in the turbine. The BACT definition specifically allows for the application of production processes. This operational process at 99% removal efficiency is also the most effective form of particulate removal for an IGCC unit and therefore is the "top technology" in a top-down BACT analysis. In accordance with accepted BACT determination procedures, if the top removal technology is selected, no further analysis is required.

$PM_{2.5}$ BACT. The Draft Permit does not include a BACT limit for $PM_{2.5}$ emissions. Nor does it appear that KDAQ even considered such a limit. This is unlawful and must be corrected before a PSD permit can issue. The federal PSD program requires a BACT limit "for each pollutant subject to regulation under the Act that it would have the potential to emit in significant amounts."40C.F.R. § 52.210)(2). $PM_{2.5}$ is "a pollutant subject to regulation under the Act" because EPA established a NAAQS for $PM_{2.5}$ in 1997.62 Fed. Reg. 38711; 40 C.F.R. § 50.7. Moreover, $PM_{2.5}$ will be emitted from this facility in a "significant" amount because it will be emitted at "any emission rate." 40 C.F.R. § 52.2 1 (b)(23)(ii). For these reasons a BACT limit for $PM_{2.5}$ is required. 42 USC. § 7475(a)(4); 40 C.F.R. § 52.21(j). Nevertheless, the Draft Permit does not contain a BACT limit for $PM_{2.5}$ emissions. This is a deficiency that must be corrected before a final PSD permit can issue.

We are aware that EPA issued guidance providing that sources would be allowed to use implementation of a PM_{10} program as a surrogate for meeting $PM_{2.5}$ NSR requirements. John Seitz, "Interim Implementation for the New Source Review Requirements for $PM_{2.5}$," (October 23, 1997). The purpose of that guidance was to provide time for the development of necessary tools to calculate the emissions of $PM_{2.5}$ and related precursors, adequate modeling techniques to project ambient impacts, and $PM_{2.5}$ monitoring sites. 70 Fed. Reg. 65984, 66043 (Nov. 1,2005). It does not propose, however, to substitute PM_{10} BACT as a $PM_{2.5}$ BACT. Furthermore, EPA has resolved most of the modeling and ambient air impact analysis issues underlying the memo. *Id.* More importantly, the guidance memo clearly contravenes the law. In order to protect public health and the environment, the regulations must be implemented as written.

Division's response:

See response in Attachment C, number 4c.

PM CEMS. The permit is required to have Compliance Assurance Monitoring for PM_{10}, as the facility will emit over 100 tpy pf the pollutant. See 40 CFR Part 64. The draft permit, however, makes no mention of CAM for PM_{10}. This omission must be remedied.

In 2004, EP A promulgated final performance specifications, PS-11, for installation, operation, maintenance, and quality assurance of continuous particulate matter emission monitoring systems (PM-CEMS). Since the PSD program is supposed to be technology forcing, requiring a PM-CEMS to ensure compliance with the PM permit limits would be consistent with that goal. Moreover, utilities can emit large amounts of particulate matter when pollution sources and/or control devices are not functioning properly and PM-CEMS can help identify such compliance issues.[32] KDAQ recently required the use of a PM CEMS in the PSD permit for the EKPC Spurlock 4 CFB project. There is extensive experience of PM CEMS on coal plants as a result of numerous NSR settlements around the country. We urge KDAQ to require the use of a PM CEMS and that a

[32] *See* USEPA Region 7 Sunflower PSD Comments

PM CEMS is required for determining compliance with the permit's PM filterable limit.

Division's response:

For CAM to apply to a unit, three conditions must be met. The first is that pre controlled emissions are greater than a hundred tons per year, secondly that there is an emission standard, and lastly that there is an active control device used for compliance. For emissions of PM/PM_{10} *the first two conditions are met, but the last one is not. There is no active control device, as defined by 40 CFR Part 64, for* PM/PM_{10}*. Therefore CAM is not required.*

With regard to the PM CEMS, unlike Spurlock 4, the potential for excessive emissions of particulate matter during malfunctions does not exist. Therefore the Division does not concur that a PM CEMS is appropriate.

Bulk Handling, Storage, Processing and Loadout Operations. The top-down BACT analysis must start with the limits that agencies have required in other permits, including the limit of no greater than 0.005 grains/dry standard cubic foot and no visible emissions, based on the permit the Illinois Environmental Protection Agency issued for the proposed Indeck-Elwood facility. See Indeck Permit at p. 27, Attachment 3. In contrast to these acceptable BACT limits, KDAQ failed to include an emission limitation for Unit 7 (coal pile). Permit at p. 25 of 51. Instead, the applicant and agency rely solely on use of certain controls and cite an approximate expected removal efficiency. BACT is an emission limitation. Controls like baghouses and methods such as "compaction" and "water suppression control methods" therefore do not constitute BACT, but are descriptions of how a source might reach a BACT limit. The permit should include numeric limits on material handling emissions like those in Indeck-Elwood. In addition, the permit relies on vague language regarding "reasonable precautions" as operating limitations for Unit 7. Terms such as "reasonable precautions" are unenforceable.[33] See Permit at p. 25 of 51. The emission limitation of 20 percent opacity for Unit 6 is also insufficient in light of the zero visible emissions limit in the Indeck-Elwood Permit. Finally, we were not able to review the emissions modeling for these sources within the limited public comment period. If the modeling did not use the maximum theoretical emission rate for each source, the agency must reject the modeling demonstration and require the applicant to resubmit proper modeling. See NSR Manual at C.4546.

Division's response:

Division does not concur. A BACT analysis is site specific and does not depend on emission levels achieved at another facility. While emission limits at other facilities are a contextual consideration which adds perspective in the consideration of appropriate BACT limits at a new facility, they are not the starting point from which a BACT analysis must begin. A BACT limit is not necessarily a numerical emission limit. Regulation 401 KAR 51:001 Section 1 (25) specifically allows for BACT limits which are ".....satisfied by design, equipment, work practice, or operational standard....." In the case of the referenced coal pile, the Division has determined that ".....technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emission standard infeasible....." as is provided for in the regulation. "Reasonable precautions" is a regulatory term used in regulation 401 KAR 63:010 Section 3. This regulation has been approved to the Kentucky SIP. The opacity limit for Unit 6 is based on 40 CFR 60 Subpart Y which establishes the appropriate opacity limit for this type of equipment.

Cooling Towers. The Draft Permit establishes a limit that requires the cooling tower to "utilize 0.0005% Drift Eliminators." Draft Permit, at 54. This provision is not BACT, and it is not an enforceable emission limit. First, a drift efficiency control rate, by itself, does not correspond to a PM emission rate. PM is formed by dissolved solids in the circulating water. The drift is emitted from the cooling towers, the water is evaporated, leaving the solids that become particulate matter. The percent of the circulating water that is emitted (drift

[33] See U.S. EPA Region 9, "Title V Permit Review Guideline: Practical Enforceability," (Sept.1999).

rate), by itself, is not a measure of particulate emissions.

Second, an emission rate, calculated from the drift fraction, total dissolved solids ("TDS") and circulating water flow rate, should be established as the permit limit for the cooling tower, based on a topdown BACT analysis. The draft permit sets a drift rate and requires that TDS be measured, but it falls short due to the lack of an emission rate or maximum TDS level in the circulating water flow. While a TDS limit of21,000 parts per million is a start, it is only sufficient as BACT if the ppm concentration is the lowest concentration achievable through application of processes and available methods, systems and techniques for reducing emissions, 42 V.S.C. 7479(3), e.g., purification and filtering of the circulating water. PM emissions from the cooling tower can be further reduced by reducing or eliminating the dissolved solids in the circulating water. Absent a showing that further reduction of solids in the circulating is not technically or economically feasible, the 0.0005% drift efficiency rate and 21,000 ppm TDS limit do not constitute BACT. If KDAQ relies on cooling tower drift eliminators and a limit on suspended solids in the circulating water to establish BACT, the Permit must also include a circulating water flow rate based on the lowest concentration achievable

Third, with regard to testing, the permit must require periodic retesting of drift rates on a more frequent basis than upon permit renewal, as drift eliminator performance degrades over time.

Fourth, a cooling tower with drift eliminators is not the least polluting technology, and does not constitute BACT. Use of an air cooled condenser ("ACC"), an alternative method, system or technique of cooling within the definition of BACT, is available and has lower PM emissions than a cooling tower with drift eliminators. ACCs have been used on large coal-fired power plants for over 25 years. The 330 MW Wyodak coal-fired power plant in Wyoming has successfully operated with an ACC for over 25 years. The largest ACC-equipped coal fired power plant in the world, the 4,000 MW Matimba facility in South Africa, has been operating successfully for over 10 years. Two coal-fired units in Australia with condenser heat rejection rates nearly identical to that proposed for Weston Unit 4 have been operational since 2002. A number of new coal-fired power plants have been proposed in New Mexico over the last three years. In all cases the project proponents have voluntarily incorporated ACC into the plant design to minimize plant water use. A36 MW pulverized coal unit in Iowa, Cedar Falls Utilities Streeter Station Unit 7, was retrofit with dry cooling in 1995 due to highway safety concerns caused by the wet tower plume in winter. The use of dry cooling is well established. The application of an AAC would eliminate nearly all of the PM emissions from the cooling process. Therefore, unless AAC can be rejected in a top-down BACT analysis, based on site-specific collateral impacts, it must be used to establish BACT. AAC cannot be eliminated based on cost, especially because it must be compared to the total cost of a cooling tower, including the towers, raw water clarification system, and intake structures. Moreover, use of AAC has additional environmental benefits, including no water withdrawals for cooling, no brine discharge to river, no aesthetic issues related to visible vapor plumes, no cooling tower drift emissions or particulate deposition.

Other potential options to reduce *PM/PMI0* emissions from the cooling process include a plume abated tower and a wet/dry system. Like ACC, these alternative processes result in lower emissions and, therefore, must be considered in a top-down BACT analysis. The applicant's analysis fails to identify, much less consider these options for reducing PM/PM 10 emissions. A revised BACT analysis must be conducted for the cooling process.

Fifth, the draft permit includes the term "reasonable precautions" as both an operating and an emission limitation. This term is vague and unenforceable. In its stead, the permit should include explicit language describing the measures to be taken with respect to the cooling tower to prevent particulate matter from becoming airborne.

Division's response:

The Division concurs with this comment in part. A calculated pounds per hour emission rate has been added to the permit as a BACT limit. This limit is based on the maximum cooling tower circulating rate, the maximum total dissolved solids, and the 0.0005% drift eliminators. The drift elimination percentage is the best that's available. The maximum *cooling water circulating rate is a function of the facility design. The only one of the factors in the BACT limit that could be changed is the maximum TDS concentration. In response to this comment the applicant provided to the Division on September 28, 2007 (included as Attachment K to this document) an analysis of the cost and technological feasibility of reducing the maximum TDS below 2300 ppm. The analysis showed that further reduction for the TDS is economically unfeasible as BACT. Also, see comment and response number 15 in Attachment A for additional background.*

The Division does not agree with the need to test the drift eliminators periodically through the life of the permit. Proper maintenance and operation of the cooling tower drift eliminators is required for compliance with Section B, Emission Unit 8 Cooling Tower 3. Testing Requirement, and Section E of the permit. Since proper operation and maintenance of the cooling tower is required for proper heat transfer, there is an inherent incentive for the company to comply with these requirements. Since the drift eliminators are fixed mechanisms with no moving parts that require routine maintenance, the Division has concluded that they will continue to function as demonstrated during the initial compliance test for the life of the permit; the drift eliminators will be retested prior to renewal.

The Division does not agree that a dry cooling tower would be the "top" candidate for a BACT review. The wet cooling tower is the emission unit chosen by the applicant. The drift eliminators, selected as BACT by the Division, are the top control technology available for cooling towers of this type. ACC is not a control device for wet cooling towers. It is an alternate to wet cooling towers. Wet/dry systems and plume abated towers are also alternative emission units, not control devices for the selected wet cooling tower. At the permitted emission limit of 2.16 lbs/hr emitted from the cooling tower, the total particulate emission is less than 9.4 tons/yr.

The term "reasonable precautions" is the language of the regulation found at 401 KAR 63:010. Consistent with 401 KAR 51:017 the permit contains conditions which require the unit to be maintained and operated properly.

iv. NOx BACT

The permit sets limits for NOx of (a) 0.03311b/MMBtu during any rolling three-hour average when firing syngas, and (b) 0.0246 lb/MMBtu during any rolling three-hour average period when firing natural gas.

Fuel-based limits. While the permit sets two different limits for syngas and natural gas, the applicant proposed a single NOx limit of 0.02461b/MMBtu for both fuels. The SOB does not explain the agency's decision to set two different limits when the applicant proposed a single limit for both fuels. While the applicant included a footnote to its proposed NOx limit, the application available for public review did not contain any text for this footnote. See App. p. 4-59 (footnote 35 empty). Absent any justification for treating the two fuels differently, BACT for NOx should be the single numeric limit for both fuels proposed by the applicant.

Furthermore, as noted above, a top-down BACT analysis must consider the use of cleaner fuels, including natural gas and biomass. Since the facility is specifically designed to be able to fire natural gas, burning gas would not "redefine the source." The limit for firing natural gas is lower than that for syngas. In addition, as noted above, co-firing biomass at an IGCC facility is technically feasible and results in lower NOx emissions than firing syngas alone. Thus, NOx BACT must be based on consideration of firing natural gas and biomass. The facility also is designed to burn natural gas in combination with syngas. By burning a mix of natural gas with syngas, or 100% natural gas, the source could lower both the pound-per-MMBtu emission rate and the hourly emission rate for each of the regulated pollutants, including NOx. Thus the BACT analysis must consider mixing natural gas with syngas and burning 100% natural gas. If the cost effectiveness of combusting natural gas, or a combination of gas and syngas, is within the range generally accepted as cost-effective for similar sources (i.e., under $10,000 per ton of pollutant removed), the BACT limit for NOx must be established based on a BACT analysis that factors in natural gas. Notably, burning 100% natural gas could allow the source to avoid purchasing some of the most expensive equipment, including the gasifier.

Lower NOx limit. Furthermore, while we commend ERORA for analyzing and selecting Selective Catalytic Reduction ("SCR") in its NOx BACT analysis, the proposed technology can achieve lower than the proposed permit limits of0.0331lb/MMBtu and 0.0246 lb/MMBtu. The applicant states that the "most stringent [NOx] emission limit" for existing and proposed IGCC sources is 0.0591b/MMBtu from the Southern Illinois Clean Energy Center facility. App. at 430. The cited facility will not employ SCR, a post-combustion control, to limit NOx emissions. SICEC therefore represents the "uncontrolled" emissions baseline for purposes of assessing SCR for an IGCC facility. The applicant acknowledges that SCR alone can achieve 90% "add-on" control efficiency for NOx. App. at 4-57. Given an uncontrolled baseline of 0.059 lb/MMBtu NOx and an add-on control efficiency of 90% for SCR, the NOx BACT limit for Cash Creek should be 0.0059Ib/MMBtu.

Division's response:

The original application had the single limit however, that submission was erroneous. A later supplemental submission provided to the Division the justification for two separate emission rates depending on fuel type. That supplemental submission was available for public review during the public comment period. Also, see response to Attachment C (4)a.

The Division does not concur with the comment that suggests that BACT must consider the use of natural gas and biomass. The unit was designed to burn only syngas with natural gas as a secondary fuel. See also the response to Attachment C comment 4.d. Further, the faculty is not designed to burn natural gas in combination with synthesis gas.

The Division does not concur that the Southern Illinois Clean Energy Center should be considered the ultimate baseline in determining uncontrolled NOx emission rate. This facility's application was withdrawn without a permit ever being issued. Since it was neither permitted nor built, it is impossible to determine whether any limit proposed for that facility is applicable, or could be achieved in practice.

v. Sulfur dioxide (SO2) and sulfuric acid mist ("SAM") BACT

The applicant asserts that a single analysis is required to determine BACT for SO2, SAM and condensable PM. App. at p. 4-42.

BACT requires a separate analysis for each regulated pollutant. First, the applicant is incorrect as a legal matter. BACT is an "emission limitation" that is determined on a "case-by-case basis" for "each pollutant subject to regulation under Act." 40 C.F.R. 52.21(b)(12). Thus, while there may be overlap in the "control devices" discussed in the BACT analysis for each pollutant (see App. at 4-42), separate BACT analyses must be conducted to arrive at proper emission limitations. Separate analysis is necessary to take into account the chemical and physical differences among the pollutants. Absent separate analyses for each pollutant, the BACT limits are not supported. As the Applicant's BACT analysis for SO2 and SAM directly discusses only "BACT Selection for SO2,"App. at pp. 4-45 to 4-56, the BACT analysis for SAM is insufficient.

A single BACT analysis for SO2 and SAM is technically unjustified. Second, as a technical matter, the applicant's combined SO2-SAM BACT analysis fails to explain why a combined analysis is justified in light of the limits proposed for the Elm Road facility. The application sites Elm Road as having the most stringent existing or proposed limit for SAM, at 0.00005 Ib/MMBtu (note that we believe this limit should be 0.0005 IbIMMBtu). App. at 4-30. The accompanying SO2 limit proposed for Elm Road was 0.03 Ib/MMBtu. The H2SO4 and SO2 BACT limits proposed by the applicant for Cash Creek are 0.0026 IblMMBtu and 0.0117 Ib/MMBtu, respectively. Given that the Elm Road project has a lower SAM but a higher SO2 limit than the limits proposed for Cash Creek, it is not clear that a single BACT analysis is technically appropriate for the two pollutants.

For comments on the condensable PM, see above.

Division's response:

Regulation 401 KAR 51:001 Section 1 (25) defines BACT as "……an emission limitation, including a visible emission standard, based on the maximum degree of reduction of each regulated NSR pollutant that will be emitted from a proposed major stationary source or major modification that: (a) is determined by the Cabinet on a case-by-case basis after taking into account energy, environmental, and economic impacts and other costs, to be achievable by the source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of that pollutant………"

Sulfur is the basic common "building block" for SO_2, SAM, and the bulk of condensable particulate. In the case of an IGCC facility such as Cash Creek, sulfur must be removed from the syngas prior to combustion to protect the combustion turbine. Since BACT can be achieved by application of production processes, pre-combustion removal of the sulfur from the syngas qualifies as a single control technology for all three (SO_2, SAM, and condensable particulate) pollutants. By reducing the pre-combustion sulfur content, SO_2, SAM, and condensable particulate are reduced proportionately. Therefore it is appropriate to consider pre-combustion sulfur removal as a BACT technology for all three pollutants. The Cash Creek application dated December 4, 2006, gives a detailed technology and cost analysis supporting their selection of the Selexol chemical process for the removal of sulfur prior to combustion. (See pages 4-46 through 4-57.) As Cash Creek notes in their application on page 4-44, "Since the highest removals available are associated with pre-combustion controls, the post-combustion technologies are not considered further in this BACT analysis." This is a valid reason to eliminate post combustion controls because a sulfur removal efficiency of 99.4% is expected with the Selexol process. Since no post-combustion control device can achieve that level of removal efficiency, the Selexol process is the correct choice as BACT for all three pollutants.

1. SO2 BACT

Clean fuels. The SO2 limit consists of a limit on the exhaust gas based on syngas fuel not to exceed 0.8 percent sulfur by weight. There does not appear to be any clean fuel consideration applied to this standard, For example, as described above in the PM BACT discussion, there does not appear to have been any consideration of the use of natural gas and/or biomass either in whole or in part as a clean fuel control method to minimize the emissions of criteria pollutants, including sulfur dioxide. The SO2 top-down BACT determination for the combustion turbines must include consideration of natural gas and gasified biomass.

Division's response:

The faculty is not design to burn biomass but syngas and natural gas used as a secondary fuel. See response to Attachment C(4)d and Attachment H, NOx BACT.

2. SAM BACT

The Draft Permit contains a SAM limit of 0.0026 lb/MMBtu. Permit at p. 4 of 51. As an initial matter, the limit lacks an averaging time. The application proposes a three-hour rolling average. Application at 4-56. In addition, this purported BACT limit appears high. As noted above, the application lists the Elm Road facility as having the most stringent existing or proposed limit for SAM, at 0.00005 Ib/MMBtu (0.0005 Ib/MMBtu).

The application provides no justification why this limit cannot be achieved at Cash Creek. In addition, in 2002, the AES Puerto Rico permit for a coal-fired CFB plant had a SAM emission limit of 0.0024Ib/MMBtu, which is lower than the proposed limit for Cash Creek. This facility will include a Wet Electrostatic Preciptator ("WESP") to control particulate matter; SOB at 16, similar to the Trimble facility recently proposed by Louisville Gas & Electric However, the SOB only lists the WESP under control technology for PM/PMI0. Id. We urge KDAQ to consider a lower SAM limit based on the use of a WESP in a top-down BACT determination for Cash Creek. As put forth above, BACT requires consideration of combinations of controls, including pre- and post-combustion controls. The use of WESPs are now common on new coal plants burning high-sulfur coal (see e.g., the Trimble facility and the Prairie State facility in Illinois) and we are not aware of any obvious technical reasons why a WESP could not be used on an IGCC plant as well.

Division's response:

A three hour rolling average for SAM has been added to the permit. With regard to the emission limit, the Elm Road facility is a CFB, not a gasifier, and is not an appropriate 'like facility' for consideration of appropriate emissions from Cash Creek. The commentor is correct that the use of WESPs are now common on new coal plants burning high-sulfur coal. However, while a WESP is appropriate for control of SAM from a high sulfur coal PC or SPC facility, it is not appropriate for a gasifier where the bulk of the sulfur is removed prior to combustion. Cash Creek is designed as a combined cycle steam turbine, similar to a standard combined cycle steam turbine that burns natural gas. Both Cash Creek and natural gas burning combined cycle steam turbines have very low sulfur fuel. The Division is unaware of any combined cycle steam turbine that is operating, permitted or designed with a WESP. Given the low sulfur content of the fuel and the limited amount of SAM emitted, the Division does not believe that a reasonable engineering analysis would compare the SAM emissions from a PC unit with a combined cycle gas turbine (CCGT).

vi. Visible Emissions

The permit contains an opacity limit of 20%, except that a maximum of twenty-seven percent for not more than I six-minute per hour. Condition B.2(d).

This emissions limit is based on the NSPS standard, and not on BACT level control. Id. (citing 40 CFR 60.42Da (b)). The Draft Permit is therefore deficient. The permit must contain a visible emission limit for regulated pollutants (i.e., PM and H2SO4)[34] that is based on the maximum degree of reduction achievable with the best pollution control option for the proposed facility. A PSD permit must require BACT for all regulated pollutants. BACT is defined as an "emissions limitation, *including a visible emission standard..."* 42 U.S.C. § 7479(3) (emphasis added); 40 C.F.R. § 52.21(b)(12). Although a BACT limit for PM or SAM typically includes an emission rate limit (i.e., pounds per hour or pounds per million Btu heat input), a BACT limit must nevertheless also "includ(e] a visible emission standard." Id.

Other recent coal plant permits include visible emission as part of the BACT limits for those facilities. For example, the Springerville facility in Arizona has a BACT limit of 15% opacity, and the Mid-America facility in Council Bluffs has an opacity limit of 5 percent.. 35[35] The Wisconsin Department of Natural Resources set a 10% opacity limit as BACT for the Fort Howard (Fort James) Paper Company's 500 MW CFB boiler. The Minnesota Pollution Control Board also considered the issue and determined that a 5% opacity limit should

[34] A visible emission standard is a limit on "light scattering particles," which include both fine particulate matter ("PM") and sulfuric acid mist ("SAM") aerosols. Both PM and SAM are regulated under PSD and, therefore, a complete PSD permit must contain a BACT limit which includes a visible emission limit based on BACT for PM and SAM.

[35] See Iowa DNR Permit No. 03-A-425-P, § lOa, available online at http://aq48.dnraq.state.ia.us:8080/psd/780 I 026/PSD _PN_02-258/03-A-425-P-Final.pdf, last visited October 28, 2005

be established based on BACT. The maximum achievable visible emission reduction for a combustion turbine, however, is much lower than 20% opacity. For example, the JEA Northside CFB in Jacksonville, Florida, conducted a compliance test during the summer of 2002, while burning high-sulfur coal, and measured opacity of less than 2%.[36] Testing done by Black & Veatch for the Department of Energy showed visible emissions at the JEA facility of 1.1 % and 1.0% opacity.[37] Also, the City of Springfield agreed to a lower opacity limit.

The final permit must contain BACT limits that include a visible emission standard for the combustion turbines. The BACT limits for PM and SAM must include a visible emission limit of no more than 2% opacity based on the results of testing at the JEA Northside facility.[38] In other words, if opacity at a CFB plant can be limited to less than 2 percent opacity, the project applicant must explain why it cannot meet such a limit when firing syngas, a fuel with lower particulate matter emissions than solid coal.

Division's response:

The Division does not concur. Opacity is not a regulated NSR pollutant under state or Federal requirements.

The actual regulatory citation for BACT under Kentucky regulations comes from 401 KAR 51:001 Section 1(25)

(25) "Best available control technology" or "BACT" means an emissions limitation, including a visible emission standard, based on the maximum degree of reduction for each regulated NSR pollutant that will be emitted from a proposed major stationary source or major modification that:...

210) "Regulated NSR pollutant" means the following:

(a) A pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the U.S. EPA;

(b) A pollutant that is subject to any standard promulgated under 41 U.S.C. 7411;

(c) A pollutant that is subject to a standard promulgated under or established by 42 U.S.C. 7671 to 7671q; or

(d) A pollutant that otherwise is subject to regulation under 42 U.S.C. 7401 to 7671q, except that any hazardous air pollutant (HAP) listed in 42 U.S.C. 7412 or added to the list pursuant to 42 U.S.C. 7412(b)(2), which has not been delisted pursuant to 42 U.S.C. 7412(b)(3), is not a regulated NSR pollutant unless the listed HAP is also regulated as a constituent or precursor of a general pollutant listed under 42 U.S.C. 7408.

From 401 KAR 51:001

Section 1 (7) "Air pollutant" means air contaminant.

KRS 224.01-010 Definitions for chapter.
As used in this chapter unless the context clearly indicates otherwise:

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[36] William Goodrich, et aI., Summary of Air Emissions from the First Year Operation of JEA's Northside Generating Station, Presented at ICAC Forum '03, p. 16

[37] See Black & Veatch, Fuel Capability Demonstration Test Report 1 for the JEA Large-Scale CFB Combustion Demonstration Project, DOE Issue Rev. 1 p. 12 (Sept. 3,2004)

[38] See Goodrich, *supra,* p. 16

(1) "Air contaminant" includes smoke, dust, soot, grime, carbon, or any other particulate matter, radioactive matter, noxious acids, fumes, gases, odor, vapor, or any combination thereof;

There is neither a federal requirement nor a state requirement to have an opacity limit other than that contained in the applicable regulations. Attempting to assign a BACT limit for opacity would require the state PSD program to be more stringent than the federal requirements. Opacity may be an indicator of particulate matter, fumes, gases or vapor, but it is not an independent pollutant to be regulated under the PSD program. Opacity is the property for the absorption of light, an appropriate indicator for a variety of air pollution concerns, but not a regulated NSR pollutant.

vii. Startup, Shutdown, and Malfunction BACT

1. Sulfur Recovery Unit

The draft permit completely exempts the sulfur recovery unit from its limit of 100 ppm by volume (dry basis) at 0% oxygen on a three hour basis during periods of startup and shutdown. Permit at p. 17 of 51. There are no obvious reasons why the permit could not require the use of natural gas during periods of startup and shutdown of the sulfur recovery unit and thereby avoid the firing of high-sulfur syngas during these periods. Accordingly, the use of natural gas must be considered in setting a top-down SO_2 BACT limits for the sulfur recovery unit during periods of start up and shutdown. The existing limit does not constitute BACT.

Division's response:

The Division is unclear on the commenter's intent. The sulfur recovery unit does not burn fuel (either synthesis gas or natural gas), nor does the combustion turbine burn 'high-sulfur syngas' during periods where the sulfur recovery unit is being started up or shut down.

2. Combustion Turbines

The draft permit does not appear to have any meaningful start up or shutdown limits for the combustion turbines for any pollutants. The permit as written exempts periods of start up and shutdown from any input-based limits for PM (both filterable and total), NOx and mercury[39], and SO2[40]. The only other applicable limits to these pollutants appear to be the annual limits.

Annual limits are not sufficient to meet the requirement that a PSD permit include BACT startup and shutdown limits for each regulated pollutant and protect air quality standards. See *In re Indeck-Elwood, LLC,* PSD Appeal No. 03-04 (EAB September 27,2006).[41] In setting lawful startup and shutdown BACT limits KDAQ must consider the use of cleaner fuels, *i.e.* other than syngas, such as natural gas and/or gasified biomass. If KDAQ issues a new permit with numeric startup and shutdown BACT limits for each regulated pollutant - as we believe it must -- the public must get an opportunity to comment on such new limits prior to their being finalized.

The permit also refers to a startup-shutdown plan submitted to the agency. Permit at p. 4 of 51. It is not clear whether this plan was made available to the public as part of the permit record. As commenters have not reviewed the plan, it is assumed that the plan contains so-called "narrative" limits to allegedly serve as BACT. Narrative limits are allowed to serve as BACT only where the agency determines on the record that "technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible." 401 KAR 51:001 Sec. 1(25)(c); 40 C.F.R. § 51.166(b)(12); *In re Indeck-Elwood, LLC,* PSD Appeal No. 03-04 (EAB September 27, 2006)("Indeck-Elwood"). If such a standard is set as BACT, the standard must establish "the emissions reduction achievable by implementation of the design, equipment, work practice or operation." Id. Narrative limits, in contrast, are not permitted where the limitations cited by the agency are principally design and operational constraints, such as the inability of air pollution control technology to operate at low temperatures during startup and shutdown. *Indeck-Elwood* at p. 70. Thus, KDAQ must make an on the record determination that these standards are met in order for the startup shutdown plan to properly serve as BACT, as well as set the accompanying emissions reduction achieveable for each pollutant under the narrative limits. Absent such justification, KDAQ must set numeric BACT limits for all regulated NSR pollutants. In addition, as a critical part of the permit's narrative limits for startup and shutdown, the plan should be attached to the permit and incorporated by reference as an enforceable component of the permit itself.

In addition. Section E contains a catchall "good practices" provision that applies during all operations, including periods of startup and shutdown. Permit at p. 37 of 51. The condition states that "Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source." As the determination will be based on "information available to the Division" that is not available to the public, the condition is unenforceable by the public and thus is in violation of Title V requirements.

Division's response:

The Commenter is in error. The permit conditions only reference, 40 CFR 60 Subpart Da which exempts the source from compliance with this NSPS standards during defined periods, there is no corresponding language in this permit that the source be exempted from BACT requirements. The permittee may follow the provisions in 401 KAR 50:055 if they are

[39] Section B Units 01 and 02, Condition 2(h)

[40] Section B Units Ol and 02, Condition 4(b) - periods of startup and shutdown excluded from 3-hour rolling average exceedances; Section B Unit 05, Condition 2(c).

[41] Deciding whether exemption from *short-term* BACT limits and inclusion of vague, to-be-determined narrative limits comply with BACT. The starting point for the EAB's decision was the statutory and regulatory definition of BACT. Under the definition, BACT requirements cannot be "waived or otherwise ignored during periods of startup and shutdowns." *Indeck-EZwood* at p. 66.

seeking relief during periods of startup, shutdowns and malfunctions; otherwise, they must comply with the BACT limits.

The Start-up, Shutdown, and Malfunction (SSM) plan was submitted in the supplemental application dated December 4, 2006. This supplemental application was available for public review during the public comment period. The SSM does not contain 'narrative limits'; BACT limits are in force during these periods.

The information to which Section E refers will be available to the Division only after the facility is built and is in operation. At that time, all information that the Division considers in making any determination regarding acceptable operating and maintenance procedures will also be available to the public through the Kentucky Open Records Act.

3. Terms Should Be Clearly Defined

The term "startup" should be defined as "the period beginning with ignition and lasting until the equipment has reached a continuous operating level and operating permit limits.[42] The term "shutdown" should be defined as "the period beginning with the lowering of equipment from base load and lasting until fuel is no longer added to the combustion turbine and combustion has ceased.[43]

Division's response:

Startup and shutdown are regulatory terms. These terms cannot be redefined in a permit.

II. THE PERMIT CONTAINS PROVISIONS THAT ARE NOT ENFORCEABLE

a. Continuous compliance.

Conditions throughout the permit fail to state that continuous monitoring systems will only be used as "the indicator of continuous compliance" and that exceedances of limits as measured by the systems will only trigger an investigation. See, e.g., Condition *BA(b).* These conditions render the CAM provisions inadequate to ensure continuous compliance with permit limits. The EPA has objected to Title V permits in Region 4 for failure to include explicit statements that the indicators are not set as enforceable limits. For example, in the Tampa Electric Company's F.J. Gannon Station case, the EPA objected to the Title V permit, stating:

> While the permit does include parametric monitoring of emission unit and control equipment operation in the O&M plans for these units... the parametric monitoring scheme that been specified is not adequate. The parameters to be monitored and the frequency of monitoring have been specified in the permit, *but the parameters have not been set as enforceable limits. In order to make the parametric monitoring conditions enforceable, a correlation needs to be developed between the control equipment parameter(s) to be monitored and the pollutant emission levels* [44]

[42] 401 KAR 52:001 contains a more general definition of start-up, "setting in operation of an affected facility." 401 KAR 52:001 (231) This definition is unenforceably vague and should be supplemented by additional permit language.

[43] Likewise, Kentucky regulations define shutdown as "the cessation of an operation," which also should be supplemented by enforceable permit language.

[44] U.S. EPA Region 4 Objection, Proposed Part 70 Operating Permit, Tampa Electric Company, F.J. Gannon Station, Permit No. 0570040-002-A V

The Permit must explicitly state that an exceedance of an indicator is a violation of the underlying applicable requirement; otherwise, the indicator does not assure that the underlying requirement is enforceable,

Division's response:

The commenter has misstated U. S. EPA's current policy regarding the use of parametric monitoring by citing a dated and inappropriate permit objection. Enforceable emission limits are set in the permit, and exceedance of a CAM level is not a permit violation, but rather a trigger for corrective actions under the CAM rule. This permit is being issued in accordance with Kentucky regulations and laws and is consistent with current U.S. EPA guidance and policy.

b. Vague and ambiguous language.

As discussed above with respect to specific permit conditions, the Permit contains numerous words and phrases that are vague and thus unenforceable. These words and phrases include "reasonable precautions," "clean", "as applicable", "suitable", "other measures", "prompt", and "as necessary." The U.S. EPA has made clear that these terms render conditions practicably unenforceable. U.S. EPA Region 9, "Title V Permit Review Guidelines: Practical Enforceability," Sept. 9 1999, at III-55 and 61 ("It is also important that permit conditions be unambiguous and do not contain language which may intentionally or unintentionally prevent enforcement"; listing language indicating enforceability problems and instructing use of specific language). The permit must be amended to include numeric limits or specific actions with which the source must comply for conditions containing vague and ambiguous language. These conditions include, but are not limited to, Unit 07 (coal handling), Condition l(a); Unit 08 (cooling tower), Condition l(a); and Unit 10 (roadways), Condition l(a).

Division's response:

The words and phrases that the commenter calls "vague" and "unenforceable" have been reviewed and upheld as adequate in permits and legal challenges and are, in fact, in some cases language of the regulations. The permit is required to be "enforceable as a practical matter" which is defined in 401 KAR 52:001 Section 1 (31). The permit contains all the requirements necessary to meet this definition. The places in the permit where such terms as "reasonable precautions," "clean", "as applicable", "suitable", "other measures", "prompt", and "as necessary" are not intended to be emission limits, but rather are indicators of actions that the permittee should take to ensure that the limits are met. They are used to provide the Division with some discretion in determining whether or not adequate steps have been taken by the permittee to ensure compliance.

III. THE APPLICANT FAILED TO DEMONSTRATE THAT THE FACILITY WILL NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF AIR QUALITY STANDARDS

a. Emissions inventories

The applicant requested a listing of all sources located within 100 kilometers of Cash Creek to determine the emissions inventory for air quality modeling. App. p. 6-16. It is not clear from this discussion whether permitted but not yet operating facilities were included in the inventory. Further, ERORA also should have included the projected emissions of sources which have been issued PSD permits but which are not yet operating.[45] For example, ERORA should have included the maximum allowable emission rates of LG&E' s Trimble County unit currently under construction, and the maximum allowable short term average emission rates must be evaluated in determining compliance with short-term average standards or increments. KDAQ should confirm whether such facilities were included and if they were not, deny the permit and require the applicant to resubmit the air quality analysis with the expanded inventory.

[45] *see* page C.34 of the New Source Review Workshop Manual.

In addition, there are clearly sources that wi1 1likely have a significant concentration gradient in the vicinity of Cash Creek that should be included in Class II increment and NAAQS modeling. These include but are not limited to the nation's largest coal plant, Duke's Gibson station (3350 MW), the TVA Paradise station in Muhlenberg County (2650 MW), the Big Rivers Coleman plant, the Southwire aluminum plant located in Hancock County, the Waupaca Foundry in Perry County, IN, and the AK Steel plant in Rockport.

Also, there are several ethanol plants and at least one biodiesel plant in the region that should have been included in the inventory but were not. There are at least two ethanol plants planned for Henderson County and a biodiesel plant proposed for Daviess County. In Indiana, there are three (at least one has secured a permit) in Posey County, one in Spencer County and one in Pike County that should be included in the analysis. ERORA also should have included emissions from oil and gas wells in the vicinity of the project. The mobile source and fugitive emissions associated with the roads for oil and gas development must also be included in the inventory of sources for a cumulative analysis.

Thus, KDAQ cannot adequately assess whether the Cash Creek source will cause or contribute to a violation of the NAAQS or Class II increments based on the analysis provided in the Cash Creek permit application. KDAQ must require ERORA to conduct a complete NAAQS and Class II increment by modeling the Patriot mine together as one source and by requiring the emissions inventory for the cumulative NAAQS and Class II increment analyses to be expanded to include all of the above sources and any other sources of air pollution, including minor and area sources, within the vicinity of the Cash Creek source. Also, it is not clear that all required sources were included in the increment consumption modeling. Sources that consume increment are: (1) the applicant source, (2) all increases since the minor source baseline date (the date of the first complete PSD application), and (3) all significant increases at major sources, after the major source baseline date (1975)-- i.e., major modifications subject to PSD/NSR-- even those that should have but did not get a permit. Typically, applicants only look at the first two. KDAQ should confirm that the source did not omit any unpermitted modifications at any nearby sources since 1975 from the increment analysis. If any modified, unpermitted sources were omitted, KDAQ should return the application to ERORA for proper increment modeling.

Division's response:

Cash Creek submitted an air quality impact assessment following the requirements of 40 CFR Part 51 Appendix W, Guidance on Air Quality Models. This analysis was reviewed and approved by KDAQ, National Park Service, and U. S. EPA Region 4. As a part of that analysis the Significant Impact Area (SIA) was determined and all sources within the SIA plus 50 km were either included or eliminated in accordance with procedures specified in Appendix W. All sources listed by the commenter were beyond the SIA plus 50 km area. Therefore it is not required by regulation that those sources be included in the air quality impact analysis. Regarding the non-specific sources referenced by the commenter as "ethanol and at least one biodiesel plant", all facilities with applications that were deemed complete by Kentucky or Indiana prior to submission of the Cash Creek application were considered in accordance with the procedures required in Appendix W.

b. Meteorological data

The PSD Application assesses compliance with the NAAQS and PSD increments for CO and PMIO using five years of meteorological data from airports in Evansville (surface data). The airport data is not of acceptable quality for air dispersion modeling. The Cash Creek PSD Application, which relies on these data for air modeling, is therefore flawed and likely underestimates modeled concentrations due to the way calms are treated, as discussed below.

Airport data are not collected with the thought of air dispersion modeling in mind. For example, airport conditions are typically reported once per hour, based on a single observation (usually) taken in the last ten minutes of each hour. The USEP A recommends that sampling rates of 60 to 360 per hour, at a minimum, be used to calculate hourly-averaged meteorological data.[46] Air dispersion modeling requires hourly-averaged data, which represents the entire hour being modeled, and not only a snapshot taken in one moment during the hour.

In addition, data collected at the Evansville airport is not subject to the system accuracies required for meteorological data collected for air dispersion modeling. U.S. EP A recommends that meteorological monitoring for dispersion modeling use equipment that are sensitive enough to measure all conditions necessary for verifying compliance with the NAAQS and PSD increments. For example, low wind speeds (down to 1.0 meter per second) are usually associated with peak air quality impacts - this is because modeled impacts are *inversely* proportional to wind speed. Following USEPA guidance, wind speed measuring devices (anemometers) should have a starting threshold of 0.5 meter per second or less.[47] Additionally, the wind speed measurements should be accurate to within plus or minus 0.2 meter per second, with a measurement resolution of 0.1 meter per second.[48]

The airport data used by ERORA, rather than being measured in 0.1 meter per second increments, is based on wind speed observations that are reported in whole knots. Thus, any winds lower than one or two knots are reported as calms, and are thus excluded from the modeling analyses. In no uncertain terms, the conditions most crucial for verifying compliance with the NAAQS and PSD increments (low wind speeds) are being excluded from the Cash Creek analysis because of the choice to use the airport data.

Sensitive and accurate measurements of wind speeds are necessary for measuring winds down to 0.5 meter per second (about one knot), which can then be used as 1.0 meter per second in the air dispersion modeling analyses. There would be no need to label such low wind speed hours as calm, which will greatly increase the number of hours included in the modeling analyses. Again, it is these low wind speed hours which must be included in the modeling data set to verify compliance with the NAAQS or PSD increments.

KDAQ should have required ERORA to collect pre-construction meteorological data for use in the Cash Creek air quality modeling. Cash Creek, which is a major emission source of many air pollutants, should not be assessed for PSD increment compliance using meteorological data collected with none of the quality assurances necessary for air modeling data.[49]

Division's response:

National Weather Service (NWS) data has long been considered adequate for PSD air quality analyses. The Division made the determination that the onsite meteorological data was not necessary based on U.S. EPA's extensive use of NWS data and approval of its use over the past several decades.

Furthermore, it is unlikely that the predicted impacts would be significantly different/higher even if the source had been required to erect a meteorological data collection tower and collect one year's worth of such data. The modeling is based on worst case impacts predicted by AERMOD using five different years of NWS data. In other words, the year of the met data that generates the highest impact is what is used to evaluate NAAQS compliance and Increment consumption.

IV. THE IGCC FACILITY AND COAL MINE SHOULD BE PERMITTED AS A SINGLE FACILITY

The SOB states that "the primary coal supply is expected be provided by the Patriot Coal Company, which operates an existing underground and surface mining and processing operation adjacent to the Cash Creek location. The coal will be delivered by a conveyor from the mine to an onsite receiving transfer-house." SOB at p.l. KDAQ issued the Patriot coal processing facility a construction and operating permit, Permit S-06-333,

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[46] USEPA, Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000, p. 4-2.
[47] Id., p. 5-2.
[48] Id., p. 5-1.
[49] USEPA, Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), EPA-450/4-87-07, May 1987, p. 55.

on December 6, 2006. Due to the interdependence of the two facilities and the increased production at Patriot necessitated by Cash Creek[50], the facilities must be evaluated as one entire source for the purposes of the PSD permit for Cash Creek. This means that in evaluating whether the Cash Creek source's impacts will be over the regulatory ambient significance levels, both facilities must be modeled together. Further, in determining the Cash Creek source's impact area for each pollutant and the impacts on visibility and other air quality related values of Class I areas, the two facilities must be modeled simultaneously to predict the overall impacts from the Cash Creek source.

Any attempt to model only impacts from the Cash Creek nominal 770 MW facility must be considered circumvention of the PSD permitting regulations and must not be allowed by KDAQ.

Division's response:

The federal (40 CFR 52.21) and Kentucky (401 KAR 51:001) PSD regulations define "stationary source" as "any building, structure, facility, or installation" which emits or may emit a regulated NSR pollutant. Additionally, the rules further define "building, structure, facility, or installation" as "all of the pollutant-emitting activities that belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control)." Therefore under the PSD program, three criteria must be considered to determine whether "pollutant-emitting activities" are part of the same stationary source:

1. *whether the activities are located on contiguous or adjacent properties;*
2. *whether the activities are under common control; and,*
3. *whether the activities belong to the same industrial grouping.*

The Patriot mine and the Cash Creek Generating Station do not belong to the same industrial grouping, nor is the Division aware of any common control between the two companies. Therefore they should not be modeled as one source for PSD.

V. PUBLIC PARTICIPATION

On Wednesday, June 6, 2007, both Meleah Geertsma and John Blair sent requests to John Lyons for an extension of the written comment period. In her request, Ms. Geertsma noted the challenges to finding a technical expert on IGCC within the standard time period, based on the relative newness of the technology. Both requests were denied outright, with the caveat that written comments could be submitted through a representative at the public hearing to be held ten days after the close of the written comment period due to a scheduling problem within KDAQ. Ms. Geertsma again requested an extension on June 19, quoting from Hearing Officer Dickinson's report in the Trimble case, issued earlier that week, noting systemic problems with the Division's treatment of public participation requirements. This report echoed the critiques stated by Hearing Officer Janet Raider in her April report on the Spurlock permit. Mr. Lyons again rejected the request. In neither of Mr. Lyons' response did he provide any justification for denying the requests beyond the extra days afforded by the Division's scheduling problems. In fact, Mr. Lyons implied that he did not have the authority to extend the comment period under Kentucky regulations ("401 KAR 52:100, Sections 2(2)(a) & 2(2)(b), are very prescriptive in that the comment period "shall" begin on the date the notice is published and "shall" end thirty (30) days after the publication date.")

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[50] According to an IEP A press release for the analogous ERORA Taylorville facility, the plant will consume approximately 1.8 million tons of Illinois coal per year. Patriot's three Western Kentucky mines together produced only 4 million tons of coal in 2004. See Peabody Energy Press Release, Nov. 9, 2005, "Patriot Coal Company Earns Reclamation Honors From the Kentucky Department of Natural Resources & Kentucky Coal Association," available at http://phx.corporate- ir.net/phoenix.zhtml?c= 1 29849&p=iro l-newsArticle&ID=78097 4&highlight=. Thus, the Cash Creek facility will require the Patriot mine to potentially more than double its production level, which will in turn significantly impact air emissions.

The blank rejection of these justified requests is unacceptable and evidences the Division's inexplicable and on-going resistance to the public's input on its permits. The public comment period exists so that the public can express its concerns with a permit to the agency, outside of the adversarial, expensive process of an administrative hearing. It is the opportunity for an exchange, with the end goal of meeting the air quality laws and regulations to the greatest extent possible. Blanket refusals to extend the comment period, particularly in light of the numerous and repeated shortcomings in the process itself noted by Hearing Officers Dickinson and Raider which produce delay and confusion for the public, prevent the public from having a meaningful opportunity to comment as the law requires. Nor does Kentucky law prescribe a maximum 30-day comment period as suggested by Mr. Lyons. The above quote conveniently leaves out the language in 401 KAR 52:100, Section 2(1)(a) clearly stating that the Cabinet shall afford a *"minimum* of thirty (30) days for public comment."

Commenters note that, due to the short time period for reviewing this voluminous and complex permit record, we have focused our comments on the BACT limits and not included complete comments on several areas which we believe to be deficient. These areas include the enforceability of numerous permit conditions, as well as the applicant's air quality modeling demonstration and soils and vegetation assessment. It should also be noted that the volume of these comments is in large part due to the extensive work of other advocates to generate the general arguments on carbon dioxide in other cases. The allotted time was wholly insufficient to do the permit-specific review necessary to meaningfully comment on the materials available for public review. Nor was the by-chance additional time to submit written comments at the hearing sufficient. We are aware of others who needed additional time to submit written comments and who had to scramble to find persons to hand deliver the comments and represent these comments at the hearing.

In sum, we are commenting on the insufficient opportunity afforded by the Division with regards to the draft permit. To correct these errors, the Division should seriously consider reopening the comment period. In addition, in the event that comments from this period result in significant changes to the permit limits, the Division should notice an additional comment period on the revised draft permit prior to finalizing it. We finally strongly urge the Division to follow, at a minimum, the recommendations laid out in the referenced Hearing Officer's reports. Ample room exists *now* under the Division's regulations for improving the opportunity for public participation in the ways noted. The Division's regulations also could be improved by amendments clearly laying out the standards for extensions. Finally, we note appreciation for the provision of electronic files during this comment period and recommend that such files be assembled prior to the notice date to enable the timely review of the voluminous files.

Division’s response:

The Kentucky Division of Air Quality is bound by the regulation which states “The comment period: (a) Shall begin on the date the public notice is published in the newspaper; and (b) Shall end thirty (30) days after the publication date.”401 KAR 52:100, Section 2(2).

The commenter appears to be confusing the requirements for a public hearing with the public notice. “ A request for a hearing shall not require an extension of the comment period; however, the Cabinet may allow additional time after the close of a public hearing for public hearing participants to submit their comments in writing. If a public hearing is held, the Cabinet shall: Provide public notice, at least thirty (30) days prior to the scheduled hearing date;”

The plain and unambiguous language of the regulation is that the public comment period expires 30 days after publication of the public notice, and that if a hearing is requested that notice be given 30 days in advance of that hearing. Because of scheduling issues, the public hearing may occur a reasonable time after the public comment period, and comments may be submitted at the hearing.

VI. CONCLUSION

For the reasons stated above, KDAQ should deny the Cash Creek-ERORA draft permit as a matter of law and fully comply with the duty to provide a meaningful opportunity for public participation during the remainder of the permit's consideration.

Division's response:

The Division does not concur; it has fully complied with its promulgated regulations concerning meaningful public participation.

ATTACHMENT I

Responses to Comments

Comments on the Draft Title V Air Quality Permit submitted Steve Jenkins, Vice President of CH2M Hill.

1. Page 2 of 51: this lists a maximum rated heat input capacity for the combustion turbines of 2917 MMBtu/hr. Please note that this is the value for the heat input to each of the gasifers, per the information presented in Cash Creek's application and consistent with GE Energy's coal gasifier design. The heat input to each of the combustion turbines should be 2114 MMBtu/hr, per information presented in the application, which is consistent with the design of the GE 7FB combustion turbine. Note that the 2917 MMBtu/hr value is also noted in the Statement of Basis, under the section "Operating Caps Description".

Division's Response:

Comment acknowledged, changes have been made to the permit and the Permit Application Summary Form. The value did not appear in the Statement of Basis.

2. While the Statement of Basis lists a VOC emission limit, it is not included in the draft permit under Section 2, Emission Limitations. I note that you refer to the emission limits as "BACT emission limits",and that a BACT analysis was not required for VOC. But does this mean that the unit will not have an "official" VOC limit, even though Cash Creek proposed a value?

Division's Response:

Since emissions of VOC were not above the PSD significance level, no BACT limit was required. Further, there are no other applicable regulations requiring a VOC limit. Therefore, the Division has no regulatory authority to impose a VOC limit. The permit requires post-construction testing to confirm that BACT was not required for the VOC emissions.

3. The Statement of Basis is informative in that it presents the emission limits on a gasifier input basis and the combustion turbine input basis. In the original Cash Creek application, they had presented the heat input for the combustion turbines, but not the coal input to the gasifiers. At the time, several of us in the IGCC industry had noted to ERORA and their consultant that the emission limits for an IGCC unit using coal should be compared to a pulverized coal unit, not to a gas-fired combined cycle unit that uses natural gas as a fuel. In the amended application, Cash Creek modified this and provided their information based on the gasifier heat input value (2917 MMBtu/hr per gasifier, for a total of 5,834 MMBtu/hr), and proposed their emission rates on the gasifier heat input basis. In the revisions to Subpart Da, EPA correctly placed IGCC units into the NSPS for Electric Utility Steam Generating Units, the same category with pulverized coal boilers, and removing IGCC from Subparts GG and KKKK, which are for gas-fired combustion turbines, not boilers. The IGCC industry is now working to standardize its approach in air permit applications. At the Gasification Technologies Council regulatory workshops, we point out the comparison of coal-based IGCC to pulverized coal-fired boilers and how to calculate and propose emission limits on the gasifier heat input basis, in order to compare coal to coal, not coal to natural gas.

We note that on page 4 of 51 of the draft permit, under Section 2 (j), it states that the BACT emission limits are based upon heat input to the combustion turbines. This would not be consistent with what the IGCC industry is working toward, and will likely cause some confusion to those who read the permit to see what the emission limits are, assuming that the emission limits would be on the basis of coal input to the gasifiers as with other IGCC permits. Should you choose to keep the emission limits on the basis of heat input to the combustion turbines, we would suggest that you move the statement in Section 2(j) up to the beginning of Section 2. Also, since people will download the permit and may not download the Statement of Basis, a table that presents the emission limits on both the gasifier heat input basis and the combustion turbine heat input basis would be very informative (as it is in your Statement to Basis document).

Division's Response:
The Division acknowledges the comment but does not agree with the suggested changes.

ATTACHMENT J

Comments on the Draft Title V Air Quality Permit submitted by at the public hearing.

KENTUCKY ENVIRONMENTAL AND
PUBLIC PROTECTION CABINET
DIVISION FOR AIR QUALITY

PUBLIC HEARING
June 29, 2007

HELD AT THE HENDERSON COUNTY COURTHOUSE
FISCAL COURTROOM, THIRD FLOOR
ON FRIDAY, JUNE 29TH, 2007, AT 6:30 P.M.

APPEARANCES:

Jim Morse
Supervisor, Permit Support

Donald Newell
Manager, Permit Review

Ben Markin
Supervisor, Combustion Section

JIM MORSE: Good Evening. My name is Jim Morse. I supervise the permit support section at the Division for Air Quality. I'll serve as your moderator tonight.

This public hearing is now in session. If you have not signed the attendance sheet at the registration table up here, that has been marked as the attendance sheet, if you would do that, even if you don't intend to comment. We need a full list of who attended this hearing.

Our division is responsible for regulating air pollution in Kentucky. We operate a central office in Frankfort and eight regional offices, including one located in Owensboro, which serves the Henderson County area.

The purpose of tonight's public hearing is to receive your comments on the draft permit for construction and operation of a coal-fired electric generating plant.

Copies of the draft permit and supporting information that were used to write the permit were made available at the local courthouse right here on May 20th, 2007, and advertised in the Henderson Gleaner on the same day. This hearing was also advertised at that time.

Our court reporter is Cathy Passmore. You can obtain a copy of the transcript of this public hearing by making arrangements directly with her. She'll advise you of the expected time frame for completion of the transcript and the cost for a copy.

In a few minutes I'll describe the procedures we'll be following tonight to take your comments.

First, Mr. Don Newell, our staff engineer will give you some details of the review our division has conducted of the proposed project.

MR. NEWELL: Thank you, Jim.

Again, my name is Don Newell, N-e-w-e-l-l. I'm also with the Division for Air Qualify in Frankfort.

UNIDENTIFIED PERSON: Hey, turn it up a little bit.

MR. NEWELL: Will you turn it up, Jim.

MR. MORSE: There is no provision for turning it up. Just speak into the microphone.

MR. NEWELL: I guess I'll have to turn

it up.

This public hearing is to receive comments on the draft permit for the electric

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generating station known as Cash Creek. It's a PSD, that's prevention of significant deterioration, title V after the title in the Clean Air Act which requires permitting of this type of source permit.

According to the Clean Air Act, stationary sources that have the potential to emit over 100 tons per year of any of the criteria air pollutants are required to have a federally enforceable title V air permit. The benefits of the title V permitting process are that it requires industry to focus on air quality implications associated with their operations. We urge the permittee to design or redesign equipment and their operations to comply with the regulations. It allows for clarification of requirements because it increases the likelihood of a compliance for the source and by the source and it increases the understanding of the permitting process. This increases the opportunity for introduction of additional pollution prevention and controls. All of this is required by the steps that are taken in compliance with the Clean Air Act.

It also makes sure that by addressing these questions up front, in other words, before

construction, the facility will be built right the first time and it will not have to undergo retrofit and redesign at a cost of time and money to comply with the law after the fact.

For this particular source there were several types of review that had to be done. As I mentioned, this is a prevention of significant deterioration or PSD permit, so it had to ensure that all of the emissions from this plant would be within the limits of the national ambient air quality standards. In PSD review you determine a baseline of air pollution, air emissions that are currently existing and then you evaluate whether that baseline, plus the emissions from the new facility are in compliance with those national ambient air quality standards. All that analysis is done before the draft permit is issued.

It also requires an analysis to determine what the best available control technology is for the major pollutants and ensure that the company or requires the company to include that best available control technology in the design of the plant.

This particular one, this particular facility, because it's within the national park

services area of interest, with respect to Mammoth Cave National Park, also had to undergo class I, Mammoth Cave National Park is a class I area, so this facility had to undergo class I area impact analysis to ensure that it did not cause unacceptable degradation to the Mammoth Cave National Park.

In determining what BAT, or best available control technology is, all potential technologies have to be identified. Technically infeasible options can be eliminated, economically infeasible options can also be eliminated, the remaining technologies are ranked by control effectiveness, taking economic, environmental and energy impacts into account, the best technology must be selected for control. This facility also underwent that analysis.

The division received an application

for the Cash Creek generating station, worked with the company to make sure that the application was complete and accurately described the facility, and then our staff engineers worked to develop this draft permit which has been presented for your review so that you can make any inputs to your beliefs about the impact of this facility.

This draft permit is not a construction permit. This draft permit does not carry construction authority, that authority will or will not be granted then. Determination will not be made until your comments have been received and evaluated. A copy of this draft has also been sent to the U.S. EPA, they've had their opportunity to review it. It's been sent to the federal land manager of Mammoth Cave National Park and it's also been sent to those adjacent states, in this case Indiana and Illinois so that interested citizens in those territories could also have the opportunity to comment.

The public comment period has run for 30 days. Your concerns will be evaluated and the division will respond in writing to each of those concerns. Taking into account the comments that we received, we will then, if there are no regulatory or statutory prohibitions to the contrary, issue a proposed permit for Cash Creek. But, again, let me emphasize, that will not happen until we have fully considered all of your comments.

So we like to thank you for being here. We would like to say that we appreciate your participation in this process. And we look forward

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to working with you to make sure that this endeavor has a satisfactory conclusion. Thank you.

MR. MORSE: Thank you, Don.

Now, let me describe the way we will conduct the rest of the meeting. I hope that each of you will recognize that there may be differing opinions in the room about this proposed project. Please let me remind you that every person here is entitled to voice his or her opinion. I will ensure that each person is allowed a fair and uninterrupted opportunity to make comments.

Persons providing comments tonight will not be questioned by anyone regarding their comments except that I may ask a clarifying question if I feel that a comment is not clear.

Our division will not determine its position tonight regarding any suggestions you make. It's important that our staff thoroughly review all the additional information that we receive during the public comment period, pro and con, prior to finalizing a position on each specific issue. Our agency has the authority to address only the air quality aspects of this project. Therefore, we would appreciate it if you would limit your comments tonight to the air

quality aspects of this proposal.

If you have other comments or concerns not having to do with air quality, I'd be happy to assist you in determining the appropriate agency or office towards which to direct them.

It's not necessary for anyone to read their entire written comments tonight. Verbal and written comments will receive equal review and consideration. If an individual has a long statement, I would urge you to summarize it in tonight's presentation and provide us a full written copy. Given the number of people who indicated their desire to speak, I would ask that verbal comments be limited to five minutes, if possible. I will indicate to you when you have one minute left and when the time limit is up. If you cooperate with us on this request, everybody that wants to speak tonight will have a reasonable opportunity to do so and we'll all still be able to go home at a reasonable hour.

Before you begin your comments, I'll ask you to come up to the podium, state your name, who you represent, and speak directly to our court reporter. If you have written comments, please leave a copy of those with the court reporter.

Now, everybody didn't print their name like it says in big print up there so bear with me if I'm unclear on who you are. L. Smithyman.

MS. SMITHYMAN: Thank you for having us here tonight. I'm Linda Smithyman, city of Henderson. I'm a member of the Sierra Club. I would like to read from a flyer that the Sierra Club has produced about liquid coal.

"Liquid coal releases almost double the global warming emissions per gallon as regular gasoline. The powers behind liquid coal want the government to funnel billions in subsidies and tax breaks to artificially create an entirely new industry. At a time when we need to be reducing our carbon emissions, liquid coal represents perhaps the dirtiest, most expensive, and most dangerous energy gamble we could take.

Manufactured by converting coal into a gas and then into a synfuel, liquid coal requires huge inputs of both coal and energy. In fact, one ton of coal produces only two barrels of fuel.

More than four gallons of water are needed for every gallon of transportation fuel produced, threatening our limited water supply. If we were to replace only ten percent of our nation's

transportation fuels with liquid coal, we would have to increase coal mining by over 40 percent.

An increase of coal mining on a scale this large would also jeopardize the long-term prospects for coal, including its use as a source of about half our electricity. Doubling or tripling our use of coal can quickly deplete our reserves.

Liquid coal is simply not a smart answer for our energy future."

What price do you put on the future health of yourself, your family, and your neighbors? Thank you.

MR. MORSE: Thank you, Ms. Smithyman. Ms. Christine Belt, please.

MS. BELT: Hello. I'm Christine Belt and I am a concerned citizen. I want to thank you for allowing me to voice my opinion this evening and I want to voice opposition to the Cash Creek power plant.

I would also like to state my support of the written comments submitted by Valley Watch and Sierra Club. I understand the Henderson areas need for new jobs, but I ask everyone involved and affected by this decision, why do we have to pay

for economic development with our health? Why do we have to put our health and our childrens' health at risk for jobs?

Our region already has a high number of coal burning power plants, 17. The biggest grouping in any region in the country or anywhere, I think. We cannot afford another. There is no such thing as clean coal, as the Cash Creek facility propose. It will create high levels of pollution in an area that is already heavily polluted.

On page 27 of Cash Creek's permit statement of basis it reads the division has not required the application to include an air quality impact analysis for ozone. I ask, why not? In the next paragraph the permit reads the purpose of these analyze is to demonstrate that allowable emissions from the proposed project will not cause or contribute to air pollution in violation of a national ambient air quality standard in an air quality control region. Hello. If this proposed plant is created, anytime the wind blows a certain direction Vanderburgh and Warrick County, two areas already at non-attainment for particulate matter and ozone issues, will be greatly affected. That

doesn't even mention what will happen to the Henderson area. We cannot afford the estimated 700 tons annually of nitrogen oxides that will be released into the air as proposed in this permit.

On page 33 of the statement of basis it discusses the affect on soil and vegetation. The predicted ambient concentrations due to the project are below the NAAQS and PSD increments and no significant off-site impacts are expected from the proposed action, therefore, the potential for accurate impact to either soils or vegetation is minimal. It is concluded that no adverse impacts will occur to sensitive vegetation, crops or soil systems as a result of operation of proposed project. I ask, how can 391 tons per year of sulfur dioxide released into the air not have an adverse impact? Sulfate dioxide is the main component of acid rain, which has a very adverse affect on vegetation and crops.

These are only two examples of the adversed effects Cash Creek will have. I'm concerned that major adversed effects are being ignored in an effort to push this project for economic development.

Unfortunately, all the costs are

estimated and the general public isn't aware of the financial costs involved. It is estimated that capital cost for IGCC plants, which are integrated gasification combined cycle plants, are estimated to be 20 to 40 percent, 47 percent higher than traditional coal plants. The Department of Energy reports that IGCC plants are seen as too risky for private investors. It requires large subsidies from the federal, state and local governments. So not only are we paying a health cost, but down the line we'll be paying a tax price as well.

I believe that the economic risks and the health risks associated with this plant outweigh any perceived gain of economic development. As a region, we must -- why must we continually be asked to pay for economic development with our health? Thank you.

MR. MORSE: Folks, as a courtesy to others, if I could ask you, if you've got your cell phone with you just put it on vibrate, please. Thanks. John Thompson.

MR. THOMPSON: Good evening. Can you hear me? Yes?

THE AUDIENCE: Yes.

MR. THOMPSON: Okay. Well, I will try

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to speak loudly just in case.

My name is John Thompson. I direct the coal transition project of the Clean Air Task Force. Clear Air Task Force is a national nonprofit environmental organization. We are headquartered in Boston. My address is 231 West Main Street, Cardondale, Illinois 62901.

Clean Air Task Force focuses on two key air pollution issues facing this century; one is global warming, the other particulate matter.

I have a bachelor of science in chemical engineering from the University of Illinois. A master's in business administration from Washington University in St. Louis. I testify regularly for environmental groups and others on coal matters. I review air permit applications for the Clean Air Task Force. I served as the co-chair of the Western Governors Association. Committee on advanced coal reviewing both pulverized coal and IGCC technology and I'm here to offer comments in two areas. First, I would like to make two very specific and limited comments on the air permit and I would like to make three more general comments about this facility in general.

First, I reviewed the permit limits and

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I consider these to be appropriate limits for best available control technology. This plant will be one of the cleanest coal plants in the country.

Second, I would like to just note that the statement of basis that Kentucky has issued for this plant is an exceptional document and I think that it is a model for future regulators in other states who are considering both conventional and IGCC plants.

What I have done, I'd like to make three comments that are more general to those of you in the audience and I prepared several diagrams which I have asked the hearing officer to previously mark. These are Clean Air Task Force Exhibit Number 1, Clean Air Task Force Exhibit Number 2, and Clean Air Task Force Exhibit Number 3. And I'd like to make, as I said, three general comments.

The first one is about how -- first of all let me just -- if you don't mind.

MR. MORSE: Sir, if you'll face the court reporter. We're not addressing the crowd here. We're taking statements.

MR. THOMPSON: Okay. I'll still glance over at you-all in the audience every once in a

while here.

The first issue I'd like to address is how extremely low the air emissions are from this particular facility and for that, as I had indicated earlier it is, if built, would be one of the cleanest coal facilities in -- not only in this country but in the world.

Exhibit Number 1, which I'm holding in my hand, consists of a table that shows Cash Creek's proposed emissions versus a nearby coal plant, relatively nearby, called the Gallagher Station. And they are roughly the same size facilities. Gallagher in 2005 emitted some 61,000 tons of sulfur dioxide and nitrogen oxide. Cash Creek, in contrast, if it were to operate 24 hours a day, seven days a week, would emit no more than a thousand tons of NO_x and SO_2 together. In fact, if you look at it, Gallagher emits more air pollution from sulfur dioxide and nitrogen oxide in three days than Cash Creek will in an entire year. That is a radically lower level of pollution.

I'd like to address a second point. And that's the impact of adding another coal plant in an area such as this that already has high levels of air pollution. The sulfur dioxide, the nitrogen oxide that are emitted by power plants in the Ohio Valley are key contributors to non-attainment designations in nearby counties for ozone and particulate matter. And I know that it sounds counterintuitive to say this, but actually if you build this plant the air quality in this region, in my opinion, gets better, not worse. Let me explain why that point may seem counterintuitive to you. After all, this is an additional plant. It's adding pollution into the air. So how is it that a plant that can -- is a new plant, that's adding more pollution, could possible reduce pollution in the surrounding air? And that has to do with how coal plants are dispatched. By dispatched, I'm referring to perhaps an analogous situation is when you call a taxi. The dispatcher decides when to send the taxi to the location that you've sent, you've requested. So it is when coal plants dispatch. They dispatch in a certain order. In coal plants such as this, are always built primarily to meet new demand for energy and electricity. The small portion, at least a small portion of it, displaces existing coal plants. And when you look at a plant, the many, many plants that are in this area, what you'll find is that an

IGCC plant, because it is highly efficient, will be dispatched ahead of the exiting coal plants. If this plant idles Gallagher for as little as 80 hours over the course of the year, there's enough air pollution offset from that coal plant to actually offset all the emissions from Cash Creek.

Gallagher and plants like that generally operate some 4,700 hours a year or more and so to -- the idea that it is highly likely, in my opinion, that this plant is going to idle existing coal plants far more often than even 80 hours. So the end result of that, is that in the region NOx and S02 are likely to go down because this is a radically cleaner plant, because this plant is more efficient and because it's going to dispatch ahead of all the existing coal plants in the region because of its efficiency.

I'd like to address a third point, and for that I'm going to now move to Thompson or to Exhibit Number 2. And that is the issue of global warming. Global warming is real. Carbon dioxide emissions from coal plants account for something like 40 percent of the C02 that is released into the atmosphere. If we don't make radical reductions in the amount of C02 that is admitted

into the atmosphere by mid century, we will see, in my opinion, large scale global warming that may threaten extinction of many species. IGCC plants, such as the Cash Creek facility, are ideally suited for capturing and sequestering this carbon dioxide before it's admitted into the atmosphere. Exhibit Number 2 --

MR. MORSE: Mr. Thompson.

MR. THOMPSON: I know, I'm hurry up here, sir. Shows a map that I prepared for testimony last week on the Edwardsport IGCC plant. It depicts the three state region. This yellow region of the saline aquifers that are good targets for this region for the sequestering part. The areas in red are the oil and gas fields where the C02 from a plant like this would make excellent enhanced oil recovery opportunities. What I'd like to suggest to you is that if we're ever going to get global warming under control, we're going to have to make at least 80 or more percent reduction of C02, worldwide reductions, including from all the power plants, all the industrial sectors in this three state region. This technology has the capability of advancing that option. Why? For this I'm moving to Exhibit Number 3. My final

exhibit.

There are three levels that an IGCC plant can capture carbon at. Roughly 20 percent, roughly 50 percent, roughly 90 percent. This plant will not, to be clear, capture carbon from its outset, but it has very inexpensively the option to do 20 percent very soon. That is enough to advance sequestration in this region and enhance oil recovery so that can make deep, deep reductions in C02. And I would just suggest to you that unless we multiply those options for capturing carbon, we will never get progress on this topic.

In conclusion, I'd just like to say that I understand in this community you have a lot of natural beauty. You have a heritage that includes John James Audubon and his contribution to ornithology. If we don't solve global warming, the efforts that John James Audubon made, John Muir made, that Teddy Roosevelt made, that Rachel Carson has made, indeed, all of the efforts that we, as a conservation environmental community, have made to protect this planet over the last hundred or more years will be out the window. It's just to you.

If we work together to advance enhanced oil recovery at this particular site, then we

actually might make a difference so that our children and their children will have a climate that is one like John James Audubon and John Muir had experienced in their lifetimes. Otherwise we face massive extinction of species, rapid disintegration of ice sheets, rises in sea level. Paradoxically this plant is contributing to the solution of air pollution problems and I hope that the division will issue an air permit as rapidly as possible. Thank you.

MR. MORSE: Let me re-emphasis a couple of things that I said earlier tonight. We're taking your comments, I would like you to address them to the court reporter. These comments and the responses to the comments and the proposed permit that results from this input will be made available again at all the same places, including this courthouse that it was made earlier with the draft permit. Every comment that's made we will get a chance to review. Anybody else that hasn't been here tonight will get a chance to see these comments and what our responses were to them.

I would also ask that you refrain from ridiculing anyone, and respect each one as we conduct this hearing. Michele Morek.

MS. MOREK: Thank you for the opportunity to speak. My name is Sister Michele Morek. I am the president of Ursuline Sisters of Mount Saint Joseph, a group of religious women who serve all over the United States and in South America. Our national central headquarters are located just south of Curdsville, Kentucky. I would like to speak on behalf of a large population of people living and working immediately downwind from this proposed plant that is, in addition to the population of Curdsville and Delaware, Kentucky.

Among other things, the sisters' motherhouse serves as the retirement home for 80 elderly and infirm women religious, several of whom have respiratory impairments. In addition, we have about 20 sisters who live and work on campus, plus about 85 employees who work in the retirement home and in the offices of the central administration. I believe we are the largest employer in Western Daviess County. So that is almost 200 people who live or work there.

That number does not include the employees and clients of the Mount Saint Joseph Conference and Retreat Center, also located on this

site. The conference and retreat center serves about 5,000 people a year-business, educational, and religious groups who come for a day or a week to use the facilities. All together, with all the events we have on campus, we probably have over 20,000 people visiting our campus every year.

I was raised right across the river from a large coal burning power plant and I have seen over the course of my lifetime the environmental degradation, loss of air quality, and cost in human health that a coal-fired plant brings to the area. We just ask that you consider the human cost and quality of living issues before citing this plant. Would you build this plant five miles upwind from your grandmother's home? We have 80 grandmothers living in our home. Thank you for your attention to our input.

MR. MORSE: Thank you. Zachariah Matthew Hust.

MR. HUST: How you-all doing tonight? I believe this plant here being proposed in Henderson County would be a real good thing. It would bring a lot of jobs for hard working people here in this community, going to have an impact on a lot of peoples' lives. I believe it will be a

good thing. Got a lot of long-term jobs for people and short-term jobs, you know, for a lot of us construction workers. Be a real good thing. I think you-all ought to think real hard about it. You-all have a good evening.

MR. MORSE: Thank you. James P. Marquart. James P. Marquart?

UNIDENTIFIED PERSON: He's hard of hearing. He's back there. Dad.

MR. MARQUART: I took my hearing aid out because the battery died. I look out and see all my friends here. I wish I could say --

MR. MORSE: Sir.

MR. Marquart: Some of my friends are

for it and some of them are against it and --

MR. MORSE: Sir.

MR. MARQUART: And work with my friends so I can't say --

MR. MORSE: Mr. Marquart --

MR. MARQUART: My name is James P. Marquart. I'm a retired CPA from Clarksville, Indiana. I was educated in Kentucky. I was raised in Kentucky. I know what it's like to make $2.00 a day sunrise to sunset working on a farm. I went to Sedic (phonetic) High School, Boldman (phonetic)

College, graduated and then went to Washington. And now I've come back in '95 to become a gentleman farmer. I wasn't smart enough to be a farmer. So then I went to Indiana, I went to Hoosier in '95 and now I'm coming back to Kentucky to tell you that I understand, if I lived here I would want to support it too, Cash Creek, it's cash for a few years, cool water down by the creek, it's a job, but then what happens afterwards. Are we going to live long enough to breath the air? Now it's not going to hurt me, I'm 73 years old. I'll be upstairs, but your children and grandchildren they're going to have to pay the price for it.

There are better answers I think. I don't have the benefit of specific knowledge of having reviewed the paperwork supporting this thing so I can't speaks to the rules primarily --

MR. MORSE: Mr. Marquart.

MR. MARQUART: I want you-all to really, really think before you make this decision.

MR. MORSE: If you'll please confine your addressing to the court reporter. Thank you.

MR. MARQUART: That's about all I have to say young lady this evening.

MR. MORSE: Jack Grappo.

MR. GRAPPO: Good evening. My name is Jack Grappo. I work for the University of Kentucky Center for Applied Energy Research Laboratory. I have a BS, MS and PhD degrees in engineering. In the course of my work I've had the opportunity to work with gas location plants throughout the United States and around the world. And I came here from Lexington tonight just to make a few comments on IGCC and gasification technologies in general.

Gasification, for those of you that are not familiar with the technology, is arguably the most thermally efficient and the lowest emissions, excuse me, lowest emission means of utilizing our coal resources. If we have a need to increase electricity production in the United States and in Kentucky, which we certainly do, if we have a need to continue to use coal as a primary fuel for these electricity productions, which we certainly must, and gasification and combined cycle strategies are certainly the most technical sound choices and the environmental responsible choice we can possibly make. Thank you.

MR. MORSE: Jim Gregory.

MR. GREGORY: Thank you. My name is Jim Gregory. I'm born and raised right here in

Henderson County. I work at one of the current coal-fire plants, the Robert Green Plant in Sebree. I know that we have a lot of opposition to those who are concerned with the environment. I just want everyone to realize that three-quarters of the employment at the powerhouses have to do with pollution control. It takes very little to make electricity. It takes a whole lot of effort to clean the air up and that is, whenever you see this huge sprawling plant out there, remember three-quarters of it is to clean the air up and the things that are done to keep our families safe. I've heard several comments this evening that said do you want your grandmothers or your children to live close to a power plant. It wouldn't bother me at all. I rather have them live close to a power plant than I would to the smells of the chicken house or the solid waste facilities that's out there. I appreciate the opportunity to make comments, and I hope you grant this permit. Thank you.

MR. MORSE: Mike Hall.

MR. HALL: My name is Mike Hall. I'm also a current -- I'm also a resident of Henderson. I was born and raised here.

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I just have a couple quick comments. I would like for us to think about tonight, like I said, we are expressing the concern about the air quality, and being a resident of Henderson, that is an issue with myself and our family. I would like to -- we're hearing some of the implications of the -- some of the new technology that's available today. I would like for us to listen to those comments and also remember that if this is something that we -- if we can minimize some of the older units in any way by introduction, introducing a new, more efficient power plant I believe that would be in our best interest. Thank you.

MR. MORSE: Tony Byrne.

MR. BYRNE: I am Tony Byrne. I live in Daviess County about three miles directly downwind from the proposed power plant. I'm concerned how the power plant will affect me, my family, my grandkids and all my neighbors. We also have a family farm that is right across the river from the proposed power plant and I like to hunt, I like to fish, and I just wonder how it's going to affect the wildlife.

I know this has been several years ago but me and a friend were quail hunting down by the

Sebree power plant, except we were on this side of the river and the power plant is on the other side of the river and it had snowed probably three or four days before, and you wouldn't know it was snow when you saw it because it was mostly black. So, if this power plant does come on line, I hope it sure does better than the one at Sebree. That's really all I've got to say.

MR. MORSE: Don Clements.

MR. CLEMENTS: My name is Don Clements. I also live west Daviess County probably three miles downwind from the proposed power plant site. If this power plant was needed locally for the citizen of west Kentucky then who could be against it? We live here. We raise our children here. We need the power plant. This is going to be a merchant plant. Shipped out of state for people in California, the people on the east coast will benefit. They say let the dumb old Kentuckians take in the particulates. We don't want it, but we want their cheap power. If it were needed locally, if the investors lived here among us, raised their children and grandchildren among us then build it.

For the gentleman from Southern

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Illinois who said that Gallagher may shutdown or implicated that Gallagher will shutdown if this power plant came on line, I think is fooling himself. This power plant production will be shipped out of state. Gallagher will continue to perform as well as Big Rivers, Sebree and every other plant in the area will continue to perform at top capacity to supply the needs of the local people as well as ship the excess power on the grid to other areas of the country who don't want the dirt and the filth in their state, but let the Kentuckians have it, they don't know any better. Thank you.

MR. MORSE: Brad Bredhold.

MR. BREDHOLD: My name is Brad Bredhold. I'm from Evansville, Indiana. My concerns with this plant are with economic development. It's going to create jobs, but how many jobs are we going to lose due to non-attainment levels. Like Evansville, Warrick County, Vanderburgh County have reached a non-attainment level or close to it for particulate levels and everything else and that's going to affect the economic, other facilities for jobs and everything else that's going to come into the

community. So if you build this plant, you're basically throwing all these other jobs out the window because no one will move factories or any other type of job here for people. And that's pretty much all I've got to say.

MR. MORSE: Thank you. Jean Webb.

MS. WEBB: Hello, my name is Jean Webb. I live in Vanderburgh County in Indiana. I'm among the very fortunate people that have health insurance. I'm even more fortunate that my insurance provider provides me with information to help me maintain my health. My provider, Welborn Health Plan, sends to my home a quarterly publication called Health Well. I read this publication because I know I'm responsible for staying healthy. I exercise, I try to maintain a healthy weight, I avoid high fat foods, and I don't smoke.

My latest issue of Health Well contained an article titled, "Air Pollution Can Break Your Heart." This article cites a 15-year study on health effects of air pollution. It concludes that long-term, living in the nation's most polluted areas can slice up to three years off the average life span.

I live in an area of the nation that is officially in non-attainment from PM2.5. That means me. I live in one of the nation's most polluted areas. Despite my efforts to exercise, maintain a healthy weight, avoid high fat foods, and refrain from smoking, I'm losing three years. My children and friends that chose to live in this area are losing three years. I still feel that I need to be responsible for my health, but all I can do to protect myself from this danger, short of moving, is to ask you to please not allow this proposed plant to operate if it will result in a net increase of pollutants.

Three years of life is too high a price for the benefits this facility might provide. Thank you.

MR. MORSE: Carly Watson.

MS. WATSON: Good evening. I'd like to say that I agree with comments made by Valley Watch and Sierra Club and Jean Webb and a lot of the opponents of the Cash Creek power plant.

I'm a resident of Newburgh, Indiana, and I represent a group called Airaware. I am here to urge you today to oppose the Cash Creek power plant that is proposed in this area.

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Before I start, I want to say that I've

been sitting on the fence with this issue for quite some time. I've had mixed feelings about this plant for a variety of reasons.

First of all, Cash Creek will use IGCC technology, which we've heard about tonight. It sounds great, compared to what is out there it is a lot better. Compared to Rockport, Gallagher, Gibson power plants in Indiana it is a lot better. However, what are the facts about this technology today? Well, while significantly less in terms of emissions, Cash Creek is not without a cost. It will still produce air pollution, especially in the form of particulate matter. And when we talk about air pollution, we are generally talking about two different types of pollution. We are talking about ozone pollution and particulate matter pollution. Particulate matter is of great concern to me because Warrick County has a non-attainment status with the EPA. Ostensibly I am concerned about anything that will add to the already high particulates in our air.

The gentleman from Carbondale was trying to say that emissions from this plant will offset emissions from existing power plants. Well, there is no suggestion or no suggestion has been made that this power plant is going to replace a grandfather plant that is existing right now. We have no evidence of that. Because if we did, I might think differently about this plant. I would love to see maybe something change in terms of a shutdown of Rockport and then maybe IGCC, but there's nothing suggesting that, nothing at all.

Next, I'd like to talk about particulate matter or PM2.5 because again that is where Warrick County is non-attainment. And I'm not trying to raise anxiety in the room by talking about this but these are the facts. We know that particles in air which is PM2.5 m is 2.5 microns or smaller in diameter. The particles are so small, they get down deep in your lungs and your lungs cannot expel them. Essentially the particles travel around your bloodstream, they can transplant in your vital organs, and can cause heart attacks, strokes, lung cancer, other cancers, and asthma. We have quite an asthma problem over in Vanderburgh County. Overall the poor health of our community has more to do with the 17 coal-fired power plants in 62 miles radius of our town, than it does with fat, sedentary smokers. Do we really want one more

power plant to this number? No. The answer is no. It is still more pollution.

In addition to its unclean reality, IGCC technology is not fully developed yet. The companies are still unsure how to sequester the carbon dioxide. And although field studies are being conducted with regard to the carbon sequestration, no conclusions have been drawn yet.

We don't need more C02. I think when we consider this issue we need to ask ourselves in what direction we want the Tristate area to go in. Do we want to continue down a heavily industrial path where the only type of businesses that want to locate here are utility companies or ones that naturally produce large volumes of pollution?

If we choose the industrial path I think at some point we will see a negative population growth. More pollution means economic disaster in the long run, not economic development. Young people do not want to raise their families in unhealthy environments.

Thank you for your time. I hope you seriously consider the issue as your decision will impact the health of the citizens of Newburgh, Indiana.

MR. MORSE: Thank you. William Bowker.

MR. BOWKER: Thank you for this opportunity, Mr. Chairman. I'm William Bowker, director of the Division of Fossil Fuels and Utility Services in Kentucky Office of Energy Policy.

I wish to express my strong support for Cash Creek Generation Integrated Gasification Combined Cycle coal production facility. Let me explain why we in state government, why we in the alternate energy policy do favor or do support this kind of technology.

Cash Creek Generation represents the advanced technologies that will be necessary if this nation is going to meet its growing energy needs while protecting the environment. It's the type of advanced technology that will enable Kentucky to attain major goals in its comprehensive energy strategy.

In 2004, Governor Fletcher put together a task force on energy policy. It was made up of leaders of the Executive Branch and from the General Assembly, held meetings throughout the state with environmentalist, academia involving energy industry, agriculture and many others and

developed an energy strategy made up of 54 recommendations. My immediate response to those who have to do with that addressed creating markets, new markets for Kentucky coal and for advancing clean coal technologies.

Now, as far as addressing the permit itself, the point made by the gentleman from Clean Air Task Force by, Dr. Grappo, that integrated gasification combined cycle is the cleanest or a very, very clean and I believe it's the cleanest way to use coal. It doesn't burn coal, it gasifies coal and because it gasifies coal it captures and separates the pollutants, the sulfur, the nitrous oxides, the carbon dioxide can be separated before they go into affluence and have a bigger move. It's efficient, it's low cost and it's the cleanest way to reach very, very low levels of emissions.

Why we're interested in this technology, why we support it is because our charge has to do with the economic growth of Kentucky and it has to do with the energy security of the United States. This plant is, as I said, an advanced representative of the most advanced technology for utilizing coal.

Coal is a major force in the economy of

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Kentucky. The five billion dollar industry employs almost 17,000 miners, over 2,700 in West Kentucky. As the third leading coal producer in the United States, Kentucky produced in 2005 almost 120 million tons of coal. Severance tax revenues alone were $224,000,000 in the fiscal year 2006. As impressive as these figures are, keep in mind how coal production and employment have declined. In 1990, Kentucky produced 173 million tons of coal, 45 million in West Kentucky. Almost double what's being produced right now. West Kentucky's record production was over 56 million tons in 1975. In 2005 this was down to 25 million tons. In 1990 West Kentucky had 5,600 miners. In 1980, West Kentucky mining employment was near 12,000. Today, there are 2,700.

Cash Creek Generation will create a new market for Kentucky coal immediately. About 2 million tons of coal which will employ about 150 miners. This, in addition, of course, to 750 to 1,000 construction workers working in this area for three or four years and a couple hundred, 200 highly skilled plant operators.

As far as United States, according to the Energy Information Administration, economic

growth in the United States will result in an almost 50 percent increase in electricity demand by 2030. And according to the EIA, coal is expected to supply most of this new generation, rising from today's 50 percent to about 58 percent of the national generation. Now, this, of course, would be good news for the coal industry and Kentucky and elsewhere. It's not certain, however, how coal is going to play this role. This expectation on the part of the Energy Information Administration takes into account conservation, it takes into account renewals, and it still comes to the conclusion that in this country we're going to have to continue to rely on coal. And if we're going to do that we have to develop the best technologies for using coal and Cash Creek represents IGCC, integrated gasification combined cycle, which is, again, the most advanced and cleanest way to use that coal.

If we don't use coal in the United States we'll have to turn to other sources, increasingly probably to natural gas. We all know since 2000 how natural gas prices have tripled. How in the past few years it's gone up to $15.00 a thousand cubic feet. If we can't find a way, as IGCC shows us a way, to use coal cleanly and to use

the coal to supply our energy, we're turning increasingly to natural gas and want to import more natural gas and we will then begin to rely on other countries, unstable, unfriendly in many cases for natural gas as we do now for about 55 or 60 percent of our oil, of course.

So in sum, we're very strongly in favor of the Cash Creek project because it advances integrated gasification combined cycle. We think that advances the economic interest of Kentucky and we think that it advances the ultimate energy policy, energy security policy in the United States. Thank you.

MR. MORSE: Thank you. Ryan Zaricki.

MR. ZARICKI: Hello, my name is Ryan

Zaricki. I grew up in Rockport, Indiana. I graduated from Rose-Hulman Institute of Technology in Terre Haute, Indiana, with a bachelor of science in mechanical engineering and I lived out in Colorado for the past five years. But recently I decided to move home and I now reside in downtown Evansville, Indiana. I would like to talk to you about options.

In the Midwest, we do have an abundance of coal reserves. Some say the coal reserves in

Illinois alone match or exceed the oil reserves in Saudi Arabia. But with the transition into a new millennium, so too comes the transition to a new way of providing fuel and energy to the people of our region, our country, and our world. In a presentation titled Gasification: The Enabling Technology James Childress states that the growth forecast for the coal gasification industry is only five percent annually, with only 19 percent of its output going towards power production.

On the other hand, "Wind power has been expanding rapidly, averaging about 15 percent annual growth over the last decade, but nearly 30 percent over the last five years." Wind power has steadily declined in cost since 1980, and it is currently price competitive with other forms of power production like coal, if not cheaper. Along the same lines, the solar power industry is experiencing the same type of growth. According to the Solar Energy Industries Association, "Global photovoltaic market growth has averaged a stunning 25 percent plus annual growth over the last ten years, with worldwide growth rates for the last five years well over 35 percent." These numbers prove that while overall energy production from

these sources is still minimal compared to conventional power production, they are growing consistently and becoming a force to be reckoned with. Oh, and did I forget to mention, wind and solar electric power creates zero emissions in the process, a truly clean option.

Biofuels is another option that is rapidly building momentum. In 1999, total sales of biodiesel in America totaled about half of a million gallons. In 2006, less than ten years later, sales topped 250 million gallons, an increase of 500 fold. Today, in Kentucky, Indiana, Illinois, and Ohio, there are over 150 million gallons of existing production capacity. Also as of today, there are nearly 290 million gallons of additional production capacity under construction in the same four Midwest states. According to the National Biodiesel Board, if this trend continues, by 2012, the biodiesel industry will create nearly 40,000 new jobs in all sectors and keep nearly $14 billion in America that would otherwise be spent on foreign oil, much of this being diverted back to family farms which we all know need it now more than ever. And this is just biodiesel. Ethanol is experiencing the same type of growth. Imagine,

with existing infrastructure, we have the ability to grow our own fuel. But you don't have to imagine, it's happening as we speak.

Coal-fired power plants are not the only way to create new jobs in our area. Coal-fired power plants are not the only way to bring economic prosperity to our area. Coal-fired power plants are not the only way to provide reliable energy for our future.

Please, for the health, safety and prosperity of not only current but also future generations, I urge you to deny this permit for the Cash Creek generation facility and to consider other, truly clean options.

The gentleman from Carbondale and the gentleman from Lexington and the gentleman who just recently spoke, I will have to admit I do understand, I do believe what they are saying that IGCC is the cleanest available technology for burning coal into fuel, but I also truly believe that clean coal is an oxymoron. No matter how you burn it, coal is dirty. There are other clean options out there. And I urge you to, please, explore those other truly clean options. Thank you.

MR. MORSE: Heidi Krause.

MS. KRAUSE: Hello, my name is Heidi Krause and I'm a resident of Evansville, Indiana and a former resident of Newburgh, Indiana.

My concerns about this plant are the same as Valley Watch and of other concerned citizens against the Crash Creek plant. This plant will create more poor air quality than what we have now. Regardless of the facts the emissions are lower, it still doesn't mean we will have any less emissions. I'm asking for the good of Henderson County, Vanderburgh County, Warrick County, and all and any other surrounding counties, please do not allow this permit or this plant to be built here.

MR. MORSE: Thank you. Bob Gober.

MR. GOBER: Thank you for the opportunity to speak. My name is Bob Gober and I'm a resident of Warrick County, Boonville, Indiana. The net gain of permanent jobs is minimal. It's too heavy of a price to pay with our air quality. No matter how low emission, thermal efficient this plant is, the fact is there's still pollution being added to our area. With the EPA lowering for air quality standard, if this project proceeds, Warrick County, Indiana will be crippled with

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non-attainment problems. A few permanent jobs will have a greater negative impact on your northern neighbors, specifically Warrick County. I respectfully ask you to not allow this permit.

MR. MORSE: Thank you. Bob Messick.

MR. MESSICK: Greetings, my name is Bob Messick from Newburgh, Indiana. I feel like I'm speaking to my neighbors in Henderson. As a neighbor we share many activities. We have many similar interests, primarily we like outdoor activities, good health, clean air, and namely an environment in which we can raise our families. We also have many activities that we have in common, we shop across the river from each other. We have entertainment facilities that we both use. We like the festivals, the river activities we use, display the river, display the environment and keep it clean. We share restaurants, we share educational facilities so that we can raise our families in this society in which they can improve their quality of life, but most importantly we share medical facilities. A single trip to Welborn is obvious the many problems are produced by the bad air that's here. We see asthma. We see allergies. We see headaches. And we see a lot of

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cancer. Very common. And I respectfully ask that this permit be refused on the basis that it really has a net deficit to our environment.

I worked for 17 years in the nuclear admission industry, the product was TALES (phonetic), which is the specter annual that we had to hide, and as we all know from the news that we read, TALES are pretty hard to hide and they're going to be with us forever. The same holds true for C02 in the environment. There's no valid safety in performing the C02 to prevent future global warming. Thank you.

MR. MORSE: Thank you. Wendy Bredhold.

MS. BREDHOLD: Hi, I'm Wendy Bredhold and I live in Evansville. I'll just speak from my heart because I haven't prepared anything.

I don't know how many members of the Air Quality Division live or reside in this area, but ever since May of this year I think we've had at least a dozen, ozone in particular, alerts already. It's not even July. We already have so many days in which we're told that sensitive population should stay indoors. And the sensitive population include children and active adults. Who's healthier than children and active adults?

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And those are the people that are told to stay inside. I mean, it's a little surreal to be standing here and asking you not to allow another power plant in this area because we're already so overwhelmed with pollution that we're told to stay indoors for what is it going to be, all summer? And this is okay? Is it okay to be told to stay indoors all summer? Is that the way we want our children to live? And how will our grandchildren live that way?

I remember -- well, I grew up all over the country in the Air Force. I didn't grow up in this area. I never heard of asthma until I moved to Evansville, Indiana. I didn't know any little kids who had respirators or had to worry about running and getting out of breath and being sick. And it's okay to live like this for a handful of temporary jobs? And then we've got all these other people who want to build power plants here because for some reason it's okay. It's okay to do that here?

Here on the front page of today's paper, Peabody looking to build another plant, they've got Edwardsport. Who's next? Because we'll allow it, while other parts of the country

say no. We don't want it. You do it. We'll take the energy, as the gentleman said. It's okay here? I don't think it's okay. And I hope that you don't allow it. Thank you.

MR. MORSE: Richard Stewart.

MR. STEWART: Hello, I'm Richard Stewart. I'm a member of local 181, operating engineers, Henderson, Kentucky. I've worked in most every power plant in this area. I'm a father, grandfather, I'm in my fourth -- four and a half years recovering from small cell carcinoma of the right lung. September the 28th, last year, I had a heart attack; October 29th, I had a stroke. I've collapsed my left lung twice.

While recovering from cancer, 34 radiations to my chest, 21 weeks of chemotherapy I never stopped working and I worked at power plants all over this country, Evansville, Princeton, TBA, Hallsville, Big Rivers at Sebree. I fought cancer, so far I've won.

And we hear our brothers and sisters across the river in loud voices, pleasant voices talking about the particulates, clean up your own backyard. General Electric is the worst polluter in the nation. More particulates per million than

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any other chemical plant in this nation. It's time. They know a lot. And I helped put scrubbers on at GE to take care of the pollution. People of Southern Indiana, Northwestern Kentucky, do you-all realize what the kill ratio is from the Mount Vernon GE plant if something happens serious; 35 miles, probably 70 percent. I helped put scrubbers on in Gibson County, Petersburg, Hallsville, Sebree, TBA over the last four and a half, five years while battling lung cancer. January I started my fifth year of recovering from lung cancer.

I would like to see Cash Creek built because of the coal gasification. It is going to be the cleanest thing going. We need the power. Yes, this power might end up in California, New York, Canada.

I think in 1997 there was a study that came out that we needed 485 new power plants put into production to maintain our present rate of round outs nationwide. So, yes, coal-fired power plants are dirty, nasty, but if I can recover from a killer working in power plants -- and I run heavy equipment. I get to play with the big toys. I play with big cranes and big dosers and about everything else in between. I've got three grandchildren, five children and they live in this area.

So we need the jobs and the power and I really -- TBA Power, I'm working at TBA right now, they've got 30 units. There is no telling on God's green earth where that power goes to. Rockport plant, that power goes to Chicago, Detroit, it all points north. We've got 17 power plants and I've help put scrubbers on four or five of them so far this last four, five years and I've been fighting cancer and I'll continue to fight and I'll continue to work at power plants. Thank you.

MR. MORSE: Wallace McMullen.

MR. MCMULLEN: I'm Wallace McMullen, energy chair of the Kentucky Chapter of the Sierra Club. Thank you for the chance to speak.

My comments, this plant will aggravate air quality problems. We've heard about the Indiana counties directly north of both plant locations, Warrick and Vanderburgh, they're already non-attainment and point vertical. This plant will aggravate the already existing air quality problems there. Please note that both the Warrick County Commissioners and Newburgh Town Board have passed resolutions opposing Cash Creek due to its impact on the Warrick County non-attainment area. Nearby Evansville, as several residents have said, a metropolitan area with over 100,000 residents will also be seriously impacted by the proposed facility.

Further, the EPA has tightened the ozone standard. When the standard is tightened to 70 or 75 parts per million from the current 84 parts per million, Warrick and Vanderburgh counties will be further from meeting clean air standards, and Daviess County in Kentucky will be in non-attainment with 70 parts per million.

Permitting this plant to pump 965 tons per year of carbon monoxide, 700 tons per year of NOx, plus volatile organic compounds, plus hazardous air pollutants, plus sulfuric acid mist into the air in this region is just making the air quality hole worse for these counties and their residents are already stuck down in.

This plant will be bad for human health. The pollutants this plant will emit will impair the air quality and have a negative impact on the health of people living within the affected airshed. Pollutants such as NOx, SOx and sulfuric

acid mist, as we've heard, will aggravate asthma problems, tend to increase cases of cardiovascular disease and increase heart attacks.

EPA's consultants estimate that the fine partial pollution from power plants shortens the lives of 745 Kentuckians each year. Kentuckians already have the second highest risk in the country of dying from power plant pollution. Statewide, the fine particle pollution from power plants also causes 16,440 asthma attacks every year, 998 -- or 798 of which are so severe they require emergency room treatment with associated loss of workdays and schooldays.

Based on EPA data, each year there's 110 lung cancer deaths and 1,000 heart attacks in Kentucky that are attributed to power plant pollution. The studies done by ABT Associates indicate that four premature deaths pre year may result from pollution emitted by this Cash Creek plant alone.

No one needs the electricity from this plant. Being built as a merchant, proposed solely for the speculative premise of the time it's built, they can sell electricity on the open market for a profit. ERORA does not have a defined service area

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containing customers for this plant. If it's not built, no one will suffer a lack of electricity.

It will aggravate global warming. It's going to put out three to four million tons per year of carbon dioxide. Folks, that's global warming pollution. As global warming worsens it's already causing serious health and economic problems in the region. For one example the heat wave of 2005, killed 4,000 feed lot cattle in Kentucky. We've observed the disaster of Hurricane Katrina strike New Orleans. We currently have massive flooding in Texas. We watched Lake Tahoe burning down this year.

The current proposal claims to be capture ready, capture this carbon dioxide but they're actually not going to do it. The proposal does nothing to deal with the crucial question facing the entire coal industry. Whether a large scale carbon sequestration can work and if coal can have a future in a carbon constrained world.

Kentucky needs jobs from efficiency and

from cleaner renewable engineering, not permitting more air pollution from dirty coal power plants.

Now, I have a 24 page letter from our attorney with associated attachments addressed to

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you, Mr. Morse, I assume you'd liked me to hand it to the court reporter?

MR. MORSE: Yes.

MR. MCMULLEN: I also have a 13 page supplemental comment I've written myself which I do not propose to read through this lengthy meeting and I'll hand these to the court reporter. Thank you.

MR. MORSE: Tom Bodkin.

MR. BODKIN: Mr. Chairman, my name is Tom Bodkin. I'm an attorney from Evansville, Indiana. I'm counsel for the town of Newburgh and special counsel for the Warrick County Commissions and I'm here and like to speak on behalf of those two entities and also for myself, I'm a resident of Newburgh. In fact, I live about a thousand yards from the Kentucky boarder. I can see it everyday.

Recently the Commonwealth of Kentucky issued a draft title V potential construction permit to build a new coal-fired merchant power plant as we know called Cash Creek in eastern Henderson County. That plant is approximately 16 miles from my house and my town. In fact, we'll be able to see the stacks from the power plant if, in fact, it's built. The permit allows them to

increase, as we understand them, various pollutants. It will increase air pollution problems in Newburgh and Warrick County since we are directly downwind from those facilities. Warrick County, as you've now heard, already fails to meet health standards for fine particulate matter and we're very near the margins for ozone. In fact, we've recently had several ozone workdays as you've now heard and I'm not sure how many, but several, and those ultimately, if they continue are going to drive us into further non-attainment status. We are now non-attainment on particulate matter. We're very close to being non-attainment on ozone. If Cash Creek is allowed to be built we believe that we will then be forced into a position of being non-attainment on ozone.

The town Newburgh and Warrick County has long, long favored and approved economic development from a reasonable standpoint. The investment through the town and county infrastructure to allow for development has been massive, in the tens of billions of dollars. But to promote economic development at the cost of degraded air quality is both shortsighted and frankly, ultimately, in no ones best interest.

Major developments will not locate in non-attainment areas. All we have to do is look across the river at Vanderburgh and Warrick County, look at all the businesses who have not located there because they're non-attainment. They may move north, but they're not locating in non-attainment areas.

If this power plant is built we strongly believe that Henderson County will likely become a non-attainment area itself, therefore, the believed economic development it would get from this plant will, in fact, not occur.

There's additional incentives to protect and improve air quality as someone mentioned a moment ago, EPA recently has lowered the 24 hour PM2.5 standard. We're already not in compliance with that. And they've indicating they're going to lower the ozone standard from 85 parts per billion to about 70. If that happens Warrick County will be in non-attainment for ozone as well. If the ozone standard is revised our quality -- air quality does not improve, then the metropolitan statically area, of which Henderson County is a part I might add, will ultimately face what we face in the Warrick and Vanderburgh

counties in Indiana and that is future economic growth will not only be stifled, it will be stopped.

There are a number of things we would request that you consider with regard to this proposal. We ask that the Commonwealth of Kentucky voluntarily take the following measures to protect air quality through our region, this is a region all of us, both in Indiana and Kentucky, call home. First, require rigorous pollutant control and reduction strategies, require coal-fired power plants to utilize the most advanced technology available to capture carbon and control and/or reduce solutions of nitrous oxide, sulfur dioxide, volatile organic compounds and all the other pollutants consistent with the implementations of Clear Air Interstate Rule .2010, the Clean Air Visibility Rule .2015. The Clean Air Written Rule .2020.

Secondly, conduct pre-construction and post-construction monitoring to acquire data for ozone and PM2.5 and to do it not only in the areas that are non-attainment in Indiana but also in at least Webster and Henderson County so that you have the necessary baseline to determine whether or not

this plant will, in fact, cause this county and your neighbors to the north to be further polluted and create further difficulty. We would also suggest that monitoring not be limited to new PS DSR sources. It should also be required to include any facility in those areas which actually or potentially emit a hundred tons per year of nitrous oxide, sulfur dioxide and volatile organic compounds.

Lastly, we suggest that you should perform air quality impact modeling specifically for the counties in the SMSA and those outside the SMSA that will be impacted by this plant. We believe that the average modeling should be performed, in addition perform modeling for each of the individual facilities. Modeling is not a perfect science but we understand that it is the best predictive available at this time.

The town of Newburgh and Warrick County commissioners are the elected officials who represent electively some 60,000 people in that part of the world. The town of Newburgh has about 4,000 citizens, the county has approximately 60. In 2001, the town of Newburgh adopted a resolution regarding this power plant and at that point

opposed it for the same reason they opposed it today, that is, we do not believe it's been adequately studied. I would request to enter into the record the resolution from 2001, for the town council of Newburgh which I call Newburgh Number 1.

Secondly, town council recently adopted -- I'm sorry it was number 2. Adopted number 1 the resolution of 2007-08, that resolution was adopted unanimously by the town council on the 13th of June again opposing this power plant. I will offer into your record Warrick County

commissioners resolution 2007-5, resolution passed in August of 2005, opposing this plant and the county commissioners again adopted that same resolution just recently in 2007 and I will offer that into your record as well. If I may.
MR. MORSE: Yes.
MR. BODKIN: I've lived in that town roughly 33 years. This year, for the first time, we saw bald eagles flying down the Ohio River. I think that's significant. It may not -- has to do with air quality I submit to you because when I moved here you didn't find sparrows flying down the Ohio River. Gentlemen, please take into account

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the resolutions representing some 60,000 people right on the boarder of this county just across the river. Thank you.
MR. MORSE: Thank you. John Blair.
MR. BLAIR: My name is John Blair. I'm here representing the group Valley Watch which is a public health and environmental group. Its purpose is to protect the public health and environment of the lower Ohio River Valley. We've been in business since 1981 and I would like to say that

things are getting better, but it seems like lately things may be getting worse.

I heard -- I overheard from the hall a while ago when one of the people who are against this plant stood up and said they were an environmentalist and somebody kind of derisively said tree hugger I heard in the hall. Well, you know, there's nothing wrong with those trees to begin with and I'm not here as a tree hugger, I'm here as a parent hugger, and a child hugger. These people are under assault by the air quality that we have here regionally. And to prove that, in 1998 a study was done by the Tristate Partners for Health, which was a business group connected with the University of Southern Indiana and they found that

a child with asthma was five times -- a child nine to thirteen in Evansville, was five to -- five times more likely to have asthma than his counter part in Fort Wayne. The reason for that is really simple. We're surrounded by power plants. Lots of power plants. Three of the biggest power plants in the United States, the Paradise power plant, the Gibson power plant and Rockport power plant combined, I'm looking here as far as carbon dioxide is concerned, combined those power plants put out a little over 50 million tons each year of carbon dioxide, the principle greenhouse gas. All of them put out lots of carbon dioxide and, in fact, this plant will, too.

It wasn't very well stated in the statement of basis as to how much coal they would actually burn. I couldn't find that in the statement of basis so I'm taking an estimate from the Edwardsport plant which is the same size. And what they're saying in their filed testimony before the Indiana Utility Regulatory Commission is that they will be putting out four to five million tons of carbon dioxide each year.

Carbon dioxide is a direct impact to our health. In fact, we breath it out every time

we breathe, but it is something that's going to cause us a great deal of problems down the road and I think that several people have addressed that aspect, including Mr. Thompson who kind of made the statement more is less and used Gallagher as an example and talked about dispatching of power plants and how this plant will actually save on pollution because it's adding to the pollution. And I'm not quite sure how he figures that Cash Creek, a merchant power plant that is selling its power on the open market to certain people, is going to be able to replace the Gallagher plant which is owned by an investor owned utility with a defined service area that has plenty of power to meet their customers' needs, but in any case.

I think it's also important to note that Mr. Thompson's testimony is kind of driven by something most people keep in our wallets, money. His group, the Clean Air Task Force, has accepted over three-quarters of a million dollars from the Joyce Foundation for one singular purpose and that is to promote the whole idea behind integrated gasification combined cycle power plants all over the midwest. You can't separate money from advocacy. Except in Valley Watch's case where we

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operate with an entirely volunteer staff and have for all but two years of the 25 years we've been in existence.

As Ms. Bredhold said, we've been -- very eloquently I might add, we've been under some form of pollution alert for most of this nice summer that we've had so far. From May 21st through about the same time in June, June 21st, we were under one air pollution alert after another.

Now, these air pollution alerts don't get issued in Henderson because the EPA didn't follow their own guidance whenever they designated counties as non-attainment or attainment. The guidance that EPA has for issues of those designations is that every county in the same metropolitan area be treated equally. Well, somehow or another because region four comes to Henderson, region five comes to Evansville and separated by a river, that designation didn't happen and the metropolitan area, the standard metropolitan statistical area which was supposed to be treated equally was not. So Evansville was designated, Evansville, Warrick County in particular were designated as non-attainment in the first round for ozone and fine particles and then

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we petitioned to get out of the ozone designation and we have improved our air quality somewhat in the region because of the NOx syp-cal which took place in 2001 and has been implemented pretty much ever since. And we've been fortunate enough to get it down to the design value now of 78 parts per million, I'm sorry 78 parts per billion as a design value and compared to Henderson which is 73 parts per billion and Daviess County, Kentucky 74 parts per billion. The EPA just issued a proposed standard last week and the range that they're taking comment on is from 70 parts per billion to 75 parts per billion. But that kind of aligns something because their Clean Air Scientific Advisory Committee and their own scientific staff had recommended a maximum air pollution standard for ozone of being 70 parts per billion because that is the place that health effects significantly start to occur when it gets to a certain level. So here we are at 74 in Daviess, 73 in Henderson and 78 in Evansville and this plant is going to cause us all to go over, so this may be the last element that we have in any of this region and that's unfortunate.

Carbon dioxide, like I said four and a

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half million tons is an awful large amount of carbon dioxide, but you don't know -- and I'll go back to ozone for a second. I'm sorry, I jumped ahead.

Ozone is one of the most significant issues that you have to deal with in this permit, but you Mr. Markin, you, Mr. Morse, did not require them to even undertake an ozone analysis. That is one of the most bizarre decisions I've ever heard of. Whenever you have two counties just north of you that are struggling not to be non-attainment, of course you should have required an ozone analysis to determine what kind of impact this plant will have on ozone in those area. Why you didn't is beyond me. I think I know why you didn't actually. It's because you knew what you'd find. You knew that this plant would not pass muster if you allowed -- if it was built if you really did an ozone analysis. So you were completely derelict in your duty not requiring an ozone analysis in this permit. And the statement of basis saying, well, it didn't have enough VOC is kind of disingenuous since the NOx syp-cal dealt with NOx, not with VOC and that's what brought us down from being in the 90 parts per billion level to the 78 parts per

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billion level, in deed.

One man said, I think it was the guy from Lexington that works for the state of Kentucky, which we know really likes coal, they rely on the severance tax for coal, the counties rely on the severance tax for coal and, you know, that gives a huge incentive for Kentucky to permit coal-fired power plants because the more coal that's dug out of this state, the more money certain counties have locally.

You can hold that up, but I haven't talked nearly as long as John Thompson so far.

So, in any case, if we're talking about these incentives for state government and local government to promote coal, we understand why this is happening, but it doesn't make it right. What you're doing is basically wrong because you're relegating the people downwind of this facility to ill health, to stroke, to heart attack, to cancer, and I guess you can work in these plants and get those things and still support it, but I don't quite understand the rationale for thinking that way, especially when coal is not the answer to our energy problem, efficiency is.

Kentucky has almost no efficiency

programs going. They like to talk about it and they throw a few bones here and there, but they don't -- they aren't taking anything seriously in Kentucky about dealing with efficiency. They certainly aren't dealing with renewable energy the way they should and conservation. There's no effort on the part of Kentucky that I can ascertain that's going out and telling the people in Kentucky ways and methods of being able to conserve their energy, to eliminate the need for additional coal-fired power plants, you know and -- we know what's happening in eastern Kentucky, with mountain top removal it's the most insidious, despicable environmental and ecological collapse that's ever been done and somehow state government is allowing all that to take place.

So it seems that these guys that want to come in here, want to come in here for one good reason, they've got almost nine hundred million dollars of GE money and hedge fund money to promote their dirty work. None of those people that I know of are going to live here, Mr. McGinnis or Mr. Schwartz or any of these people are going to live here. They're going to be far away. Probably resting in their resorts, counting the money as it comes in.

You know, we really do encourage you to take another look and especially demanding Cash Creek do a thorough ozone analysis because that is a glaring omission from this permit.

I have submitted testimony from Carol Overland, as her personal representative, I've submitted testimony from Meleah Geertsma, from the Environmental Law and Policy Center who wrote testimony for Valley Watch, the Sierra Club and the Environmental Law and Policy Center and I hope that you will take the time to read it. Thank you very much.

MR. MORSE: Gary Osborne.

MR. OSBORNE: Good evening. My name is Gary Osborne and I reside in Owensboro, Kentucky. I'm the business manager of the International Brotherhood Electrical workers, local 1701 and also the secretary/treasurer of the Owensboro area of building and construction trade council. Our council has jurisdiction in nine counties in Kentucky, including Henderson. We represent 19 affiliate crafts, local unions, and approximately

10,000 working families. Many of our affiliates have jurisdiction in Southern Indiana with a

portion of their membership residing in Southern Indiana.

Our council strongly supports the construction of Cash Creek Generating Facility to be located in Henderson, Kentucky. The proposed 630 megawatt integrated gasification combined cycle facility is the most advanced and largest gasification project under development in the United States. This project would produce fewer air emissions, would use less water and be capable of providing power for 400,000 homes. Prior to one shovel of dirt being turned on the project the developers of the project has made a substantial commitment to the communities of Southern Indiana and Western Kentucky.

First, the project was completely redesigned moving away from the standard coal burning power plant to an IGCC facility for the sole purpose of reducing emissions to our communities. This commitment added millions of dollars to the cost of the facility but was deemed necessary by developers in order meet the demands of the citizens. This will be the cleanest IGCC plant in the United States.

Secondly, the project owners have

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committed to the use of a local construction work force by entering into project labor agreements with the local building trades. By entering into such an agreement, this will prove to have a tremendous economic impact in the region. The agreement means several thousand long-term, high paying construction jobs for the local construction work force. It means career opportunities for local youth within the apprentice programs, the commitment by the project owners also means that every construction worker who is employed on the project and also the families will have healthcare insurance at a time when many families are losing their employer sponsored healthcare benefits. Jobs that provide such benefits are important, not only to those families receiving the benefits, but also the local healthcare facilities providing the services.

It means millions of dollars pumped into the local market area weekly. These high paying construction jobs, which is projected to peek at 1,200 to 1,500 construction workers, could pump as much as a million five hundred thousand weekly into our economy. Plus the hidden benefit of healthcare dollars into the local economy. With

no large construction projects locating in our area of Western Kentucky in over 20 years these construction jobs are badly needed. Dollars earned in this community by citizens of this community stays in this community. Dollars made locally and spent locally turns over seven times in a community.

Not only will construction workers benefit, the local home builders, real estate market, local car dealers, banks, retail, sales, healthcare facilities. All businesses will benefit from this project, as well as local government and schools. Millions of dollars of tax revenue will come back to local government and, in turn, the citizens of the community will, once again, benefit through increased tax revenues.

Businesses come to states anymore with their hands out, selling out to the highest bidder, in most cases their only commitment to the community is to do what's absolutely necessary to receive their incentives. On nearly every occasion there's no commitment to utilize the local citizens in the construction of the projects. The project owners of Cash Creek have committed in writing to local construction work force. This is much more

commitment to our community than a majority of our local industry has committed to either new or existing.

Today the Cash Creek developers have not been offered one dime for tax incentives to locate to Henderson County or, for that matter, Kentucky. However, they have committed to spending millions of additional dollars to produce a much cleaner facility and have also committed to the utilization of the local work force.

Third, the generation of electricity is needed in our area. The Western Kentucky area does not have an abundance of power available. The negative impact of such is a loss of good paying industrial prospects that cannot even consider the Western Kentucky area for location. With the exportation of our good paying industries to low wage countries, there are very few opportunities for any area to land good manufacturing jobs and what few opportunities exist must not be lost because of lack of power availability.

Kentucky is currently the third largest coal producing state in the United States. Kentucky must take advantage of their abundance of natural resources available. The location of the

Cash Creek plant in Henderson County will not only create 1,200 to 1,500 temporary construction jobs, it will also create 150 to 200 high paying power plant jobs and to operate and maintain the plant along with the creation of mine and mine related jobs which would also be high paying jobs.

I would ask that you don't turn your back on the cleanest coal burning plant in the United States. Kentucky has the resource, Western Kentucky and Southern Indiana need the jobs in this area, the United States needs the power. On behalf of our members we offer our strong support and urge you to support the project. Thank you.

MR. MORSE: Ernest Whitehead.

MR. WHITEHEAD: I'm Ernest Whitehead of Benton, Kentucky and we live in the lake area and a lot of people have problems with breathing. We believe that it's important to check the EPP caps on the web to look at the ozone and fine particulate data. We've done that almost everyday for the last month or so. I really believe that for improving efficiency of power plants, I think the combined cycle idea is the best way, however, I also believe that to add efficiency you look at temperature entropy diagrams to add feed water

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heater open and closed types into cycles in order to improve efficiencies, and also I believe that perhaps it's best to oppose this just because at this point in time we just have too many particulates and too much ozone and an additional power plant, I feel, would be completely unwarranted and that concludes my comments. Thank you.

MR. MORSE: Thank you. Corinne Whitehead.

MS. WHITEHEAD: I am Corinne Whitehead, president of Coalition for Health Concern. This is a nonprofit environmental advocacy organization founded in 1985.

On behalf of the members of the Coalition for Health Concern in Kentucky and Southern Illinois, we take this means to express our opposition to the construction and operation of the Cash Creek plant. Please place our comments in the record.

Until Kentucky takes action to control the smog and acute air pollution, which is partially attributed to coal-fired power plants, no additional coal-fired plants should be built in this state. The cost are acute.

Kentucky does not have a power insufficiency. Kentucky must not assume the health damage and cost for power that is to be exported to other regions by merchant power plants.

The health of Kentucky citizens and our neighbors across the river, trumps the excuse for additional power plants. I'll give an example of what we know about a person, a Catholic sister in our county became ill, the doctor did x-rays and asked her how long she had smoked. Her reply was never. Her lungs were described as those of a heavy smoker. She died. Another friend of long-standing has to have oxygen at home full time and when she leaves her home. It's ridiculous to go to a restaurant and see people with portable oxygen and it's all because of the pollution and the crud in the air. The increase in asthma attacks among youngsters has increased dramatically.

The visible smog has increased over the past four or five years. Many days the visibility is dramatically impaired when one tries to even look across Kentucky lake. A remote sensing study, which I was a party to some years ago, was made on the effects of air pollution, on the oak and hickory forests in our region, and the damage is

extensive and included in the air and down.

In addition to mercury, anthracene, and other pollutants, has the cabinet or EPA tested for radiation in Kentucky coal? It is well-known that natural uranium is found in the Chattanooga shale from the Ohio River east of the Appalachian Mountains. We feel that the draft permit fails to protect the citizens' health and must be denied. Thank you.

MR. MORSE: Thank you. Carol Oglesly.

MR. OGLESLY: My name is Carol Oglesly

and I'm a resident of the greater Evansville area.

Basically what I would like to say is very simple. I am a member of Valley Watch and I do strongly support their position as well as the Sierra Club's position on this matter. I strongly encourage this community to deny the Cash Creek power plant.

MR. MORSE: Thank you. Rock Emmert.

MR. EMMERT: Thank you. My name is Rock Emmert and I appreciate the opportunity to be invited, first of all, as a resident of Indiana. I live up in Dubois County, it's about an hour and a half drive down here. I'm on the southern edge and I'm a teacher at Forest Brook High School, an

English teacher.

And first of all, I'd like to say that this -- there's been a little discussion tonight about the Indiana, Kentucky thing and it's about us. We're all in this together. Illinois, every region in the world that has this sort of issue going on and I think that's a point that needs to be stressed of -- if you look at the globe from a distance we're one little spec on this planet. We're all brothers and sisters. I have close friends in Kentucky and relatives in Louisville and I understand this company is based in Louisville, I believe.

But, anyway, I grew up in Ferndale (phonetic), I'm 45 years old, been teaching 24 years. I went away to grad school in Vermont and I thought I was -- I graduated near the top of my class and I thought I was pretty intelligent and I thought I was pretty aware and I get to New England where they have fairly strict laws and I realized that our region of the country is, what's the word I want to use that's kind. They call Southern Indiana hicks and I hear that all the time. Kentucky, you know, the Indiana, Kentucky jokes and I thought, well, they're just talking. Well, I

started to do more scientific research and I do think that our region of the country is a laughing stock of a good portion of the country and I'm a part of that. I'm very much a part of that.

As an English teacher I also have a profound respect for science and the preponderance of evidence is that what we're doing to our area just doesn't make any sense for the long term. And

I respect the need for jobs, but I've got to believe that we can create jobs, all of you in this room, we can create jobs for all of us in this room and all of our families that's clean and that makes sense for the long term.

John suggested at a meeting I attended recently, most of us eat food that travels over a thousand miles from a grocery store. We live in the most fertile part of the United States, the green belt, we have all this land and what if we use some of our construction skills to build huge greenhouses and the existing coal plants divert some of that heat in those greenhouses in the winter and become the produce capitol of the United States. Talk about jobs and income and reputation, and dealing with the global warming question. I mean that's just one suggestion. And I don't know,

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I'm not a scientist, I'm not in politics, I don't know all the studies but I think we can do better.

And another coal plant, even this method, as so many people before me said just doesn't make sense, especially when we don't need the energy here. Solar, wind, as we're driving across the bridge at Owensboro a while ago looking out at that river, and I was up in Niagara Falls a couple weeks ago, we have power right here in this river. And I don't know much about hydroelectric, what that would do to the environment but, man, that river is moving 24/7, the sun is shining 24/7. And we're not the greatest wind area of the United States, but we have some wind and it could offset some of the -- if we had a hearing on wind versus solar and hydroelectric, electric or other means I'm just curious if we here in this part of the country would have the turnout that we have tonight. I would hope so because I think the direction of the world is moving in that direction.

And Toronto's headlines on TV when I was up there said they're reducing their coal plants in the entire Province of Ontario from four down to zero in ten years. I mean, there's a picture on

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the TV of one of the giant stacks come crumbling down. One of my friends who was with me, said, "Oh, my God, I've never seen anything like that before in my life." But that's their goal within ten years to have it down to zero and it just strikes me a little behind the times for us to be here tonight. And I appreciate everybody's concern, but I, for one, am of the opinion that this is not wise for the long-term. It's going to create short-term jobs, we've heard that a lot tonight.

Texas had nine coal plants in the works and that project was recently bought out by a solar and wind firm and I don't know all the details about it, but that was headlines in the news about a month ago. And the governor of -- or the mayor of either Houston or Dallas fought the coal idea and she, with a lot of other people, won, and they're using renewable resources. And that, too, creates a lot of jobs.

I think we need to get with the rest of the enlightened people on the planet and use our energy in our schools, in our resources, our great colleges in Kentucky, Indiana and Illinois and start looking at -- it's not going to happen

overnight -- but start looking at something that is long-term for our children and our grandchildrens' sake. So I would strongly urge all of you who have the great responsibility of making this decision to keep that in mind. And great respect for everybody who's spoken before me, too. I know this is a difficult issue. So thank you.

MR. MORSE: Gary Brown.

MR. BROWN: Good evening, I'm Gary Brown. I live in Daviess County. I've been on this planet about half a century and I've spent half of it one mile growing up next to a power plant. The other half, I think I've probably lived within 30 miles of nine other plants. I'm pretty healthy. I'm not going to say that they're the best thing in the world. You're not going to have clean energy, it's just not possible or it's just impossible, but we have an opportunity, this could be the point where we become the leaders. We're wanting to build the cleanest advanced technology power plant in the country as far as coal burning.

MR. MORSE: Mr. Brown, face the court reporter.

MR. BROWN: I'm sorry. The only other opportunity is some people mentioned wind, well,

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that might work in Kansas and other places, but I'm not too sure about here. They mentioned hydro.

Okay, well, let's build a dam down below Evansville and watch the rest of you people from Indiana move to Kentucky where it's a little higher ground because you'll be basically flooded in that area. So anyhow, we're talking about the cleanest burning power plant in the country. I think it's an opportunity and I just believe it's an opportunity we can't pass up. It's not for economic reasons. These other plants that we have in this area are not going to continue to run. Most of them are as old as I am.

The gentleman from Carbondale mentioned Gallagher, I'm not sure where it's at, I believe it's in Indiana somewhere, but he mentioned 80 hours of reduced generation would equal the emissions of what this plant would put out for the whole year. Well, that's pretty significant. If we can eliminate that and Rockport and -- well, Gibson is doing their thing as far as putting in the scrubbers up there, but they're not quite there yet, but now that I've mentioned these three plants here, they happen to all be in Indiana. I think as one other guy mentioned, clean up your own

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backyard. And if anybody pays any attention to which direction the wind blows and where the weather comes, it comes from the southwest going northeast. Well, I live directly in line with this plant, I'm fixing to build a home for my five, seven and twelve year old girls and it's going to be directly in line with this plant, does it bother me, well, you might think I'm going to be ignorant because I'm saying no, because I'm used to being around power plants. However, the point I'm trying to get at is that we do have an opportunity to be leaders in the world and not the laughing stock, you know. We can send a message to everybody else in this county that we're building clean power, as clean as possible.

But I am also curious to know, had a lot of people speak up here, seems like most of the people that are speaking are in opposition and a lot of us construction workers are not exactly speakers. So I'd just like to know, people that are in favor of this plant would you please raise your hand. Thank you. I think that's a significant number right there in itself.

And to close this, like I said, I'm not really a speaker, but I'm also not exactly uneducated. I have over 22 years of education and training, a couple degrees to go along with that. So thank you for your time.

MR. MORSE: Thank you. Carly Watson.

MS. WATSON: I've already spoken.

MR. MORSE: Oh, you signed in twice.

MS. WATSON: Maybe somebody signed me in by accident. Can I bring up waste water?

MR. MORSE: I didn't hear the question.

MS. WATSON: I said can I bring up waste water?

MR. MORSE: If you'll speak to me after this hearing I'll be happy to direct your comments to the appropriate party.

MS. WATSON: Okay.

MR. MORSE: Ben Taylor.

MR. TAYLOR: Good evening. My name is Ben Taylor and I live in Daviess County, the village of Maceo.

I want to, to save time, I want to speak about my concern about global warming. Although the design of this plant makes it theoretically possible to sequester C02 emissions, there's no proposal that will actually do so. In fact, it's yet to be demonstrated that C02

sequestration is either technically feasible or economically viable. The dangers posed by burning vast quantities of fossil fuels are well established scientifically and by now is familiar to most citizens. Warmer temperatures, melting glaciers, reduced snow cover in northern latitudes, thawing permafrost with the accelerate release of large amounts of heat trapping methane gas, rising ocean levels with extensive coastal flooding, disruptions of agriculture, loss of entire ecosystems as well as the extinction of numerous individual species, more damaging hurricanes and tornadoes, and the spread of topical diseases and pests into formerly temperate regions are all part of the global warming scenario described in scientific literature, popular books, and one Oscar-winning documentary film.

Although the global warming scenario is by now rather familiar, we must admit that we can scarcely imagine or predict the full extent of economic harm or ecological destruction. Unless mankind, led by heavy emitters of greenhouse gases like the United States, can make drastic reductions in emissions, the earth will be unable to avoid the most serious consequences of global warming. It's

impossible to predict all the consequences and the potential for unforeseen disasters due to interaction between novel geophysical conditions and greatly stressed biological systems seems to be unacceptably large. We're wandering into uncharted territories. We only have one earth to destroy. Once it is cooked, we are done. Personally I prefer the adoption of policies that move us toward the sustainable use of resources. Thank you.

MR. MORSE: Thank you, Mr. Taylor. That concludes the list of people who indicated they wish to speak tonight. Is there anyone else whom would like to speak now? Come forward.

MR. WEYER: Yes. I'd like to give everybody a little heads up on who I am, my name is Cliff Weyer from Southern Indiana up in Dubois County. I'm a land owner in a couple different counties up that way.

I am currently living in Vermont right now, and I'm a teacher of sixth, seventh and eighth grade students in middle school and I can clearly say that I used to be in an audience like this, totally different spot from where I am now.

Through my course of studies at Indiana State, I have learned an immense amount of

information on technologies that are related to alternative energy. And in Vermont they don't think twice about objecting to something like this. They have a different mentality than westerns, midwesterns I found out.

When I took this job, as a teacher at Southern Vermont I was asked to teach the kids alternative energy. Now, right now China is one of the leading countries in industrial growth. They have many, many, many more dirty power polluting plants than we do here, and they're looking for two states to help them out of the United States, out of all 50 states, they're asking California for help to clean up their coal plants and also Vermont. So I think that the position I'm in, being from the area, leaving, living in Vermont, breathing the clean air, should be taken into consideration.

I really would appreciate if we can take some of this energy in this room, in this part of the country and turn it into something that can help foster education of the masses, try to get people aware of conservative energies. There are many, many more solutions. I just read this week about a company, they are in Canada, they have a

900 acre solar panel farm they're starting. 900 acres. That's a very, very small amount of land compared to what's here. You've got options, there are other ways. There are many other ways.

I would also like to enlighten some of you, I will guarantee that a very small percentage of the people in this area, this room know about this. I'm using 75 percent of renewable energy in Vermont. 75 percent of my electric bill every month comes from renewable cow pow. The farms in Vermont, the dairy farms in Vermont are extremely small compared to what we have here. Very, very small. This is just one option. One option. Take some of your farms in the local area, give it a try. There's government help out there. There are other options that will use less detrimental, I guess, properties. Give it a thought.

I've been the construction worker, my

family owns a huge, huge company, I've been there. Here sitting in this room I would like to make you aware that construction work for this project is temporary. It's a very short project according to how long you might be working.

That's about all I have to say. I want to thank everyone for getting up here and speaking

and I'm really glad to be here, as I didn't even know this was going to occur. I'm just from Vermont for a very short time. Thanks.

MR. MORSE: Frank Travatto, you've indicated you wanted to speak.

MR. TRAVATTO: Yes. My name is Frank Travatto. I'm a member of local 40 boilermakers Elizabethtown, Kentucky. I live in Henderson County, I have two young sons, nine and five, that go to school in this area. I've lived here most of my life. I think as long as this plant meets the EPA guidelines as far as safety and other issues that it should be built to create jobs in this area. I've worked all over the country, I've heard these people in the Evansville area. I have worked at Rockport, Warrick, Gibson County and the work that we do we are exposed to a lot of these

asbestos, fly ash that has lead, nickle, a lot of
safety things that ran in on these outages.
Someone has to do it. We use safety guidelines as
far as we can to get by with them, but we've been
up in it and so has all my life.

I am in favor of this plant and that's
all I have, sir, thank you.

MR. MORSE: Thank you.

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MR. VANDIVER: My name is Garland
Vandiver. I've lived in Henderson County almost 50
years.

MR. MORSE: Sir, would you spell the
last name for our reporter.

MR. VANDIVER: V-a-n-d-i-v-e-r. I'm
for the plant. Henderson County needs the work for
economical reasons. People from Evansville and
Newburgh are saying they're downwind from this new
plant, most weather maps I've ever seen the wind
blows west to east, not north to south or south to
north. And I hope that somehow that -- I'm getting
too old to work in construction, I may give it a
try, but for kids that are growing up here in this
town, we need some more things to keep them here in

this part of the country. Thank you, sir.

MR. MORSE: Thank you. Is that everyone then.

MR. MCCORMICK: I won't keep you guys very late. I've got to be in the power plant in the morning, in Newburgh as a matter of fact. Adam McCormick. I say from the young people's standpoint, this power plant is going to be a good thing for this area. I have a 97-year-old grandmother that lives five miles from the Big

River Power plant. She's still very active. You know, we can all come up with scenarios where everybody is a statistic, you know.

MR. MORSE: Give us your name.

MR. MCCORMICK: Adam McCormick. I just think this thing, this power plant would be a good thing for this area. That's all I've got. Thank you.

MR. MORSE: Come on up.

MR. ARNOLD: My name is Jim Arnold. I live in Vanderburgh County. I'm a boilermaker by trade for 30 years in December. The job a boilermaker does, like other brothers and sisters in this room, we build pollution control equipment, SCRs, precipitators, scrubbers. We got done building the SCR and a scrubber on unit 30, powerhouse stain plant. Also, the plants in Big River systems have put in new pollution control systems. I'd like to know, that this study that the other group was talking about, how old is that study? Because it should be updated. By us putting in these new pollution control systems at these power plants, it should help the quality of air.

And one more thing, I'm in favor of

Cash Creek. Kentucky has got a chance to show the nation, the commonwealth does, to show the nation that we are involved in clean air environment. So I am in favor of this power plant. Thank you.

MR. MORSE: Thank you.

MR. WEST: Hello, my name is Tim West. I work at the Big River facilities and just like the other gentleman said earlier, we spent millions of dollars on pollution control, NOx reduction, SOx reduction, it's a daily factor. I've heard all these things about the air attainment in Warrick County right across the river.

I was a young child at the time but I remember when they built a powerhouse on this side of the river and the Indiana bat was on the endangered species list. I guess once they moved the powerhouse across the river they grilled that Indiana bat, maybe, so I think that Mayor Weinzapfel across the river -- but I heard a lot of people say you can't get industry in Indiana because of the air attainment, but I don't know if you're buying or selling, but I'm for this fire house on this side of the river Kentucky style for jobs and economic development. And that's all I've got to say about that. Thank you.

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MR. MORSE: Thank you.

MR. BURTON: My name is Truman Burton and I'm a resident of Ohio County and I live about four miles downwind from the Kansas power plant, been there two decades. I also live about 20 miles of three other powerhouses. One thing that kind of struck me here about this meeting is looking at the cross section of individuals that make it up. I want to remember as a young child listening to John Kennedy say, you know, "ask not what your country can do for you, but what you can do for your country." And that's why I support the new technology that goes into this plant and I support building it. Because I feel like along with other new technology on the renewable wind and solar and other research, I feel like that the new technologies of the future is what will bring us to future energy independence and will bring our soldiers home from Iraq, which is a high priority with me right now, and it possibly could avoid future war, major war that involves a lot of different countries. I think new technologies in our future, like this plant involves, can give us a chance to avoid some of the things that could go wrong in our future.

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I appreciate your all time and for listening to me and I hope that you'll have God's speed in looking at these different issues that come before you and that you'll make a decision that will be good for America. And I'm willing to sacrifice, if possible, risk to my family and me by living around powerhouses and supporting new technologies that comes along to help us get out of our energy problems. Thank you.

MR. MORSE: Anyone else.

MS. MARK: I'm Carol Mark. I'm a resident of Daviess County. I'm a native of Niagara Falls, New York. We used to be, although I'm not sure right now, but we used to be the hydroelectric power capitol of the world. And I go home occasionally to see my friends and one of the things that they're frightened about most is a terrorist attack. We talked about air quality and jobs, but no one has ever said with so much concentrated electrical power in this area, how much of a risk are we involved in in terms of a terrorist attack. I live with that everyday of my life. My son works in London, England, and today they found a bomb. I live with that everyday. So, that's my concern. Nobody has brought that up.

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One of the people here said there were 17 power plants in this area. Not a bad sight for somebody who wants to take on a lot of energy that's going to go to California, in Michigan, Chicago, just think about that, that's a thought. It's not to do with air quality, although we may end up with poor air quality if we get nuked.

MR. MORSE: Thank you.

MS. LATHAM: My name is Susan Latham, L-a-t-h-a-m. I live here in Henderson and I work in the healthcare field here in Henderson.

It saddens me greatly that we do not have any children in this room that suffer from asthma and that will continue to suffer and suffer more and we will have more children added to that number right here in Henderson. There is a huge burden on the doctors in this county because of problems that we already face. And it's been in our paper that we are the unhealthiest or the 49th unhealthiest state in the union. It just blows me away that we do not put that as our top priority when we consider this.

People that say that they think it's great that this company is here because they have committed to union workers, you can see, visually

see why they are saying that. They are assured of a total base support if they say that that's what they are going to employ. People who can't figure out why they're not asking for tax breaks, they do not need tax breaks. This state does not have laws that would keep companies like this out of our state like other states have. That's why they're coming to us, folks, because we have no way to keep them out. We do not make the laws because for us health is not our priority. Thank you.

MR. MORSE: Okay. If you've made an oral statement or not you are still welcome to submit written comments tonight. After this public hearing closes we won't be accepting official comments. Yes.

MR. COULTER: My name is David Coulter and I live in Evansville. I know that may be a word to some people in this room. I'm an avid fisherman. I like to fish, eat the fish that I catch but in Indiana we have fish consumption advisory for every single surface water resource in the entire state. Every creek, every river and every lake in the entire state. And it comes as a result of airborne mercury that comes from all the coal that is burned in the coal-fired power plants

all through this region. You-all got the same problem over here but you don't talk about it as much. I submit to you that that probably is the most important, I mean aside from the air quality and everything else, mercury is a much more toxic substance than ozone or SO2 or NOx or any of the others. Mercury kills. It causes brain damage. It causes neurological disorders. And I can't eat the fish in Indiana because of the mercury. And, yeah, they're talking in Congress about trying to put some caps on things and trying to clean up the mercury and get it out of the air, but they haven't done it yet and I still can't eat my fish in Indiana. I don't know about you-all here in Kentucky, I imagine the situation is the same over here. And it ain't going to get any better because mercury in your water is cumulative over time, just like PCBs, just like dioxin and all the other toxin substances that we know about. So I really wasn't going to say anything but if you want to have more mercury in your fish go ahead and build this plant.

MR. MORSE: Thank you. Okay. We're going to take the time to address all of the air quality related comments that we take home with us tonight and the ones that are received during the

30 days of public comments preceding this hearing. When the permit is proposed to the EPA, comments that were received and the response to the comment

will be made available on our website, WWW.AIR.KY.GOV and if you want to see me after to get that, I'll be happy to write it down for you. It will be available here in the county clerk's office, and at the Owensboro Regional office. You can also obtain it by contacting us directly at 502-573-3382 or by mailing a request to the Division for Air Quality, Permit Review Branch at 803 Schenkel Lane, Frankfort, Kentucky 40601.

Those of you that are still with us, thanks for coming tonight. This public hearing is now closed.

(PROCEEDINGS CONCLUDED AT 9:10 P.M.)

(UNLESS OTHERWISE NOTIFIED BY THE PARTIES INVOLVED, THE TAPED RECORDING MADE IN CONNECTION WITH THE TAKING OF HEARING WILL BE DESTROYED SIX MONTHS FROM THE DATE OF HEARING.)

COMMONWEALTH OF KENTUCKY)
)SS:
COUNTY OF DAVIESS)

I, Catherine Passmore, Notary Public, State-at-Large, do hereby certify that the aforegoing deposition was taken at the time and place set forth in the caption thereof; that the witness therein was duly sworn on oath to testify the truth; the proceeding was reported by me stenographically; and the aforegoing is a true and correct transcript to the best of my ability.

I further certify I'm not a relative or employee of attorney or counsel of any of the parties hereto, nor a relative or employee of such attorney or counsel, nor do I have any interest in the outcome or events of this action.

I hereby certify that the appearances were as stated in the caption.

DATED THIS 9TH DAY OF JULY, 2007.

____

CATHERINE PASSMORE, NOTARY PUBLIC
STATE-AT-LARGE
OHIO VALLEY REPORTING SERVICE
202 WEST THIRD STREET, SUITE 12
OWENSBORO, KENTUCKY 42303

COMMISSION EXPIRES:
September 13, 2009
DAVIESS COUNTY, KENTUCKY

This transcript has been reviewed by DAQ personnel, and air quality related comments that were raised during the public hearing have been previously addressed in this document. There are three air quality related questions that have not been previously addressed. These questions are excerpted verbatim and answered below:

From Christine Belt, transcript page #10

On page 27 of Cash Creek's permit statement of basis it reads the division has not required the application to include an air quality impact analysis for ozone. I ask, why not?

Division's Response:

Regulation 401 KAR 51:017, Section 7.(5) (a) states, in part: "No de minimis air quality level is provided for ozone. However, a net increase of 100 tons per year or more of volatile organic compounds subject to this administrative regulation is required to perform an ambient impact analysis including the gathering of ambient air quality data." Since the total VOC emissions from the Cash Creek project are less than 33 tpy, no ambient air quality impact analysis for ozone is required.

From Christine Belt, transcript page #11

I ask, how can 391 tons per year of sulfur dioxide released into the air not have an adverse impact? Sulfate dioxide is the main component of acid rain, which has a very adverse affect on vegetation and crops.

Division's Response:

See response to comment in Appendix F numbers 1 and 2 of this document.

From Corinne Whitehead, transcript page #65

In addition to mercury, anthracene, and other pollutants, has the cabinet or EPA tested for radiation in Kentucky coal?

Division's Response:

In the 'Study for Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units—Final Report to Congress' dated February 1998 (EPA-453/R-98-004a), U.S. EPA concluded that "the risks due to exposure to radionuclide from utilities are substantially lower than the risks due to natural background radiation."(page ES-23)

ATTACHMENT K

Supplementary TDS Concentration Analysis from Cash Creek dated September 28, 2007

September 28, 2007

Mr. Ben Markin
Combustion Section Supervisor
Permit Review Branch
Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, KY 40601

RE: Draft Permit Number V-07-017
Source Name: Cash Creek Generation, LLC
Source I.D. #: 21-101-00134

Dear Mr. Markin:

This letter is in response to a query from the Permit Review Branch related to potential reductions of Total Dissolved Solids ("TDS") in the Cash Creek Generation, LLC ("CCG") cooling tower circulating water.

Background:

The quantity of Particulate Matter ("PM") emissions from the CCG cooling tower is dependent on three operating parameters: circulating water flow rate, liquid drift loss, and the TDS concentration in the liquid drift. The circulating water flow rate (375,000 gpm) is set by process cooling needs and can not be reduced to control PM emissions from the cooling tower. A Best Available Control Technology ("BACT") analysis was performed in the permit application to select high efficiency drift eliminators (99.9995% efficiency) as BACT respecting liquid drift loss. The purpose of this letter is to demonstrate that the remaining parameter, TDS can not be cost-efficiently reduced in terms of BACT ($/ton of emissions reduction) to reduce cooling tower PM emissions at the Cash Creek Generating Station.

Potential TDS Control Approaches:

Two control technology/operating approaches can be used to reduce TDS concentrations in cooling tower circulating water in order to reduce TDS concentrations in liquid drift. The first option involves demineralizing cooling tower make-up water in a water treatment plant to remove TDS. The second option involves reducing the Cycles of Concentration ("COC") in the cooling tower to avoid concentrating TDS as water is evaporated from the cooling tower.

Technically Feasibility:

CCG believes that both options are technically feasible to reduce TDS concentrations in the liquid drift in order to reduce cooling tower PM emissions.

Control Effectiveness of Control Approaches:

Option 1, demineralizing cooling tower make-up water, can theoretically reduce TDS concentrations to less than 1ppm in liquid drift. For purposes of this analysis, CCG has assumed that this option would result in no PM emissions from the cooling tower. This assumption is very aggressive in that it ignores PM that would result from erosion, corrosion, degradation of cooling tower fill, and the low levels of TDS that would persist in demineralized make-up water.

Option 2, managing cycles of concentration, could reduce TDS concentrations to a level that approaches the TDS concentration of CCG's cooling tower water supply source. CCG's water supply will be withdrawn from the Green River and then clarified to remove Total Suspended Solids ("TSS") prior to introduction to the cooling tower. After clarification, the TDS concentration in the supply water will be approximately 310 ppm. For purposes of this analysis, the control effectiveness of this option is assumed to be fifty percent (50%) as compared to the engineering design of the CCG cooling tower (7 COC), or 3.5 COC. This option reduces PM emissions from the cooling tower by fifty percent as compared to CCG's permit application. The impact of reducing COC is increased water usage.

Option 2A, represents managed COC consistent with CCG's permit application. In this option, the cooling tower is operated at seven (7) COC consistent with good engineering practice related to corrosion management, thermal efficiency, and diminution of cooling water consumption.

The following table delineates the cooling tower PM emissions that result from each control option.

Option	TDS Concentration	Annual PM Emissions
1. Demineralized CT Make-up	Assumed to be 0 PPM	0 tons/year
2. Operation at 3.5 COC	1,150 ppm	4.73 tons/year
2A. Operation at 7 COC	2,300 ppm	9.45 tons/year

Economic, Environmental and Energy Impacts:

Economic Evaluation:

Option 1 involves significant capital expenditures and incremental operations/maintenance expense. To assess incremental capital expenditures, the demineralizer for process water at CCG was upgraded from 849 gpm throughput to 5,784 gpm (849 gpm for process water and 4935 gpm for cooling tower make-up). This increase in demineralizer size results in an incremental capital expenditure of $41.05 million. Use of a capital recovery factor of 0.094393 yields an annual capital recovery expense of $3.87 million. Incremental operations/maintenance expense for this option (as compared to Option 2A) is $1.85 million annually. Therefore, the total incremental annual cost associated with Option 1 is $5.72 million.

Option 2 will require additional capital expenditures to address increased water handling capability and potential changes to cooling tower fill or reservoir sizing. However, a detailed engineering analysis of cooling tower design and pump, valve, and piping cost would be required to delineate the incremental capital cost. Therefore, this analysis assumes that no material capital cost increase would be incurred to implement this option. However, this option does result in incremental water usage of 1,000 gpm or 525,600,000 gallons/year. Water supply expense (energy and operations/maintenance) at CCG is $500/million gallons. Therefore, the annual incremental cost associated with Option 2 is $262,800 if capital cost impacts are ignored. CCG has also ignored incremental water treatment chemical cost and additional solid waste handling cost that would be associated with handling an additional 525 million gallons of water annually.

The average cost effectiveness of each alternative is depicted below.

Option	Annual PM Emissions (tons)	Increase in Annual Cost	Annual Average Cost ($/ton)
1. Demineralized CT Make-up	0	$5,720,000	$605,291
2. Operation at 3.5 COC	4.73	$262,800	$55,678
2A. Operation at 7 COC	9.45	Base	Base

The incremental cost effectiveness of each alternative is shown below.

Option	Decrease in Annual PM Emissions (tons)	Increase in Annual Cost	Incremental Cost ($/ton)
1. Demineralized CT Make-up	4.73	$5,457,200	$1,153,742
2. Operation at 3.5 COC	4.72	$262,800	$55,678
3. Operation at 7 COC	Base	Base	Base

Environmental Evaluation:

Option1 involves removing TDS from all cooling water. This removal would result in incremental solid waste production of 3,285 tons/yr based on capture of the 310ppm of TDS in the clarified cooling tower make-up water.

Similarly, Option 2 would produce an incremental 175 tons of solid waste annually. This increase is due to removal of Total Suspended Solids ("TSS") in the inlet water clarification system for the incremental 525 million gallons of water that would be consumed annually. That additional water consumption also constitutes a significant environmental impact.

Energy Evaluation:

Both Option 1 and Option 2 require incremental energy consumption as compared to Option 2A. However, given the material economic and environmental impacts described above, CCG has not undertaken an engineering analysis to quantify those impacts.

Conclusion:

As demonstrated by both the economic and environmental evaluations above, reducing TDS to reduce cooling tower PM emissions is not cost-effective in the context of accepted BACT $/ton of emissions reduction values. This is especially true when the environmental impacts associated with increased solid waste production and water consumption are considered. CCG believes that BACT for the Cash Creek Generating Station cooling tower can be accomplished with a 2.16 lb/hr PM emission rate, premised on the following parameters.

- A maximum cooling tower flow rate of 375,000 gpm,
- Drift eliminator efficiency of 99.9995%, and
- A maximum TDS concentration of 2,300 ppm.

If CCG can provide any additional information, please feel free to contact me at 502.357.9901.

Very truly yours,

Michael L. McInnis
Manager
Cash Creek Generation, LLC